BA7-219

L.6
Cal-31

ROYAL HOSP
PLYMOUTH
141b

# TRANSACTIONS

OF THE

# MEDICAL AND PHYSICAL SOCIETY

OF

# *CALCUTTA.*

VOLUME THE FOURTH.

CALCUTTA:

PRINTED FOR MESSRS. THACKER AND CO. ST. ANDREW'S LIBRARY;
AND SOLD BY
MESSRS. PARBURY, ALLEN, AND CO. LONDON.

1829.

322329

WELLCOME
LIBRARY
INSTITUTE

# LIST OF THE MEMBERS

OF THE

## Medical and Physical Society.



ADAM, JOHN, M. D. *Surgeon Bengal Establishment.*
ADAM, JOHN, Esq. *Asst. Surgeon Madras Establishment.*
ALLEYN, THOMAS, Esq. *Surgeon H. C. Ship General Kyd.*
ANGUS, GEORGE, Esq. *Surgeon Bengal Establishment.*
ANDERSON, G. Esq. *Assistant Surgeon Bengal Establishment.*
ANNESLEY, JAMES, Esq. *Surgeon Madras Establishment.*
ATKINSON, JAMES, Esq. *Surgeon Bengal Establishment.*
BABINGTON, HENRY, Esq. *Assistant Surgeon Bengal Establishment.*
BACON, J. F. Esq. *Assistant Surgeon, Bengal Establishment.*
BAILLIE, GEORGE, Esq. *Surgeon Bengal Establishment.*
BAKER, THOMAS, E. Esq. *Surgeon Bengal Establishment.*
BAKER, J. Esq. *Assistant Surgeon Bengal Establishment.*
BARBER, JAMES, Esq. *Assistant Surgeon Bengal Establishment.*
BARKER, JAMES, Esq. *Assistant Surgeon Bengal Establishment.*
BARKER, THOMAS BROWN, Esq. *Assistant Surgeon Bengal Establishment.*
BATHGATE, JAMES, Esq. *Surgeon.*
BATTERSBY, R. Esq. *Assistant Surgeon H. M. S.*
BELL, B. Esq. *Assistant Surgeon Bengal Establishment.*
BELL, WILLIAM, Esq. *Asst. Surgeon Bengal Establishment.*
BELL, HENRY PEILE, M. D. *Asst. Surgeon Bengal Establishment.*
BIRD, JAMES, Esq. *Surgeon Bombay Establishment.*

Bogie, William, M. D. *Asst. Surgeon Bengal Establishment.*
Brander, James M., M. D. *Asst. Surgeon Bengal Establishment.*
Breton, Peter, Esq. *Surgeon Bengal Establishment.*
Browne, Robert, M. D. *Calcutta.*
Browne, G. G., M. D. *Asst. Surgeon Bengal Establishment.*
Bryce, Alexander, M. D. *Asst. Surgeon Bengal Establishment.*
Burke, William A., M. D. *Inspector of Hospitals King's Troops.*
Burnard, Richard, N. Esq. *Asst. Surgeon Bengal Establishment.*
Burt, Benjamin, M. D. *Asst. Surgeon Bengal Establishment.*
Butter, Donald, M. D. *Asst. Surgeon Bengal Establishment.*
Cameron, William, Esq. *Asst. Surgeon Bengal Establishment.*
Campbell, John, M. D. *Asst. Surgeon H. M. 30th Reg.*
Campbell, Donald, Esq. *Asst. Surgeon Bengal Establishment.*
Carte, William Edmond, A. B. *Asst. Surgeon Bengal Establishment.*
Carruthers, Peter, Esq. *Asst. Surgeon Bengal Establishment.*
Castell, Jehosaphat, Esq. *Surgeon Bengal Establishment.*
Cathcart, Mathew, Esq. *Surgeon H. M. 38th Reg. Foot.*
Chalmers, William, Esq. *Surgeon Bengal Establishment. (Retired.)*
Chalmers, Alexander, M. D. *Asst. Surgeon Bengal Establishment.*
Chapman, Henry, Esq. *Asst. Surgeon Bengal Establishment.*
Charters William S., M. D. *Asst. Surgeon Bengal Establishment.*
Cheek, George Nicholas, Esq. *Asst. Surgeon Bengal Establishment.*
Clapperton, J. B. Esq. *Surgeon Bengal Establishment.*
Clarke, Hezekiah, Esq. *Asst. Surgeon, Bengal Establishment.*
Clarke, Alexander McKenzie, Esq. *Asst. Surgeon Bengal Establishment.*
Clarke, James, Esq. *Asst. Surgeon Bengal Establishment.*
Cockerell, William, Esq. *Asst. Surgeon Bombay Establishment.*
Colvin, John, M. D. *Asst. Surgeon Bengal Establishment.*
Cooper, Henry, Esq. *Surgeon Bengal Establishment.*
Corbet, J. Esq. *Asst. Surgeon Bengal Establishment.*
Corbyn, Frederick, Esq. *Surgeon Bengal Establishment.*
Cotton, T. F. Esq. *Asst. Surgeon H. M. 14th Regiment Foot.*
Crawfurd, John, Esq. *Surgeon Bengal Establishment. (Retired.)*
Crockett, H. Esq. *Surgeon Dentist, Calcutta.*
Dalrymple, John, Esq. *Asst. Surgeon Bengal Establishment.*
Darby, William, Esq. *Surgeon Bengal Establishment.*
Dartnell, G. Esq. *Surgeon H. M. Depôt, Chinsurah.*
Davidson, John, Esq. *Asst. Surgeon Bengal Establishment.*

DALGAIRNS, W., M. D. *Surgeon Bombay Establishment.*
DAVIDSON, ISAAC, Esq. *Assistant ditto Bengal Establishment.*
DEMPSTER, JOHN, M. D. *Asst. Surgeon H. M. 38th Regiment Foot.*
DEMPSTER, T. ERSKINE, Esq. *Asst. Surgeon Bengal Establishment.*
DICKSON, A. Esq. *2d Member Medical Board.*
DON, J., M. D. *Asst. Surgeon Bombay Establishment.*
DONNOGHUE, M. O., M. D. *Asst. Surgeon Bengal Establishment.*
DWYER, JOHN O., Esq. *Asst. Surgeon Bengal Establishment.*
DUFF, WILLIAM, Esq. *Surgeon Bengal Establishment.*
DUNCAN, JAMES, Esq. *Asst. Surgeon Bengal Establishment.*
DUNCAN, A. C., M. D. *Asst. Surgeon Bengal Establishment.*
DUNCAN, A. Esq. *Surgeon Bombay Establishment.*
DURHAM, SAMUEL, Esq. *Superintending Surgeon Bengal Establishment.*
ECKFORD, JOHN, Esq. *Surgeon Bengal Establishment.*
EGERTON, CHARLES CHANDLER, Esq. *Asst. Surgeon Bengal Establishment.*
EVANS, JAMES, Esq. *Surgeon Bengal Establishment.*
EVEREST, CHARLES E. Esq. *Surgeon Bengal Establishment.*
FALLOWFIELD, JONATHAN, Esq. *Surgeon Bengal Establishment.*
FENDER, JOHN, Esq. *Asst. Surgeon Bengal Establishment.*
FINDON, WILLIAM, Esq. *Surgeon Bengal Establishment.*
FLEMING, F. Esq. *Asst. Surgeon Bengal Establishment.*
FORREST, THOMAS, Esq. *Asst. Surgeon Bengal Establishment.*
FORSYTH, JOHN, Esq. *Asst. Surgeon Bengal Establishment.*
FORTNOM, JAMES, Esq. *Asst. Surgeon Bombay Establishment.*
FRITH, ROBERT, Esq. *Surgeon, Calcutta.*
FURNELL, F. Esq. *Asst. Surgeon Bengal Establishment.*
GARDEN, ALEXANDER, Esq. *Surgeon Bengal Establishment.*
GILMORE, ALLAN, M. D. *Assistant Surgeon Bengal Establishment.*
GLASS, WALTER, M. D. *Assistant Surgeon Bengal Establishment.*
GLEN, JOSEPH, Esq. *Surgeon Bombay Establishment.*
GOLD, FRANCIS, Esq. *Assistant Surgeon Bengal Establishment.*
GORDON, W. Esq. *Assistant Surgeon Bengal Establishment.*
GORDON, G. Esq. *Superintending Surgeon Bombay Establishment.*
GOVAN, GEORGE, M. D. *Surgeon Bengal Establishment.*
GRAHAM, ARCHIBALD, Esq. *Assistant Surgeon Bombay Establishment.*
GRAHAM, JAMES, M. D. *Assistant Surgeon Bengal Establishment.*
GRAHAM, WILLIAM, M. D. *Surgeon, Calcutta.*
GRANT, C. S. Esq. *Assistant Surgeon Bengal Establishment.*

GRANT, JOHN, Esq. *Surgeon Bengal Establishment.*
GRAY, D. MACQUEEN, M. D. *Assistant Surgeon Bengal Establishment.*
GRAY, WILLIAM, Esq. *Surgeon Bombay Establishment.*
GRIFFITH, JOHN, Esq. *Assistant Surgeon Bengal Establishment.*
GRIMES, WILLIAM, Esq. *Assistant Surgeon Bengal Establishment.*
GREIG, JOHN, Esq. *Assistant Surgeon Bengal Establishment.*
GRIERSON, JAMES, Esq. *Surgeon Bengal Establishment.*
GUTHRIE, HUGH, M. D. *Assistant Surgeon, Bengal Establishment.*
HALIADAY, A., M. D. *Surgeon Bengal Establishment.*
HATHWAY, L., Esq. *Surgeon Bombay Establishment.*
HAMILTON, WILLIAM, M. D. *Assistant Surgeon Bengal Establishment.*
HAMILTON, J. HENRY, Esq. *Surgeon His Majesty's Service.*
HARDIE, JAMES, Esq. *Assistant Surgeon Bengal Establishment.*
HARE, JAMES, M. D. *Surgeon Bengal Establishment.*
HARPER, EDMUND T., Esq. *Assistant Surgeon Bengal Establishment.*
HARCOURT, JOHN, Esq. *Asst. Surgeon His Majesty's Service.*
HARLAN, JOHN, M. D.
HART, F. Esq. *Assistant Surgeon Bengal Establishment.*
HENDERSON, JOHN, M. D. *Surgeon His Majesty's Service.*
HENDERSON, JOHN, Esq. *Surgeon Bengal Establishment.*
HENDERSON, THOMAS, M. D. *Surgeon Bengal Establishment.*
HEWETT, WILLIAM W., M. D. *Assistant Surgeon Bengal Establishment.*
HOARE, CHARLES B., Esq. *Assistant Surgeon Bengal Establishment.*
HUNTER, CHARLES, Esq. *Superintending Surgeon Bengal Establishment.*
HUTCHISON, JAMES, Esq. *Assistant Surgeon Bengal Establishment.*
INGLIS, THOMAS, M. D. *Assistant Surgeon Bengal Establishment.*
INGLIS, J., M. D. *Surgeon Bombay Establishment.*
INNES, JAMES, M. D. *Surgeon Bengal Establishment.*
IRVINE, J. H., Esq. *Assistant Surgeon Bengal Establishment.*
JACKSON, ALEXANDER R., M. D. *Assistant Surgeon Bengal Establishment.*
JACKSON, THOMAS, Esq. *Surgeon His Majesty's Service.*
JACKSON, WILLIAM, Esq. *Surgeon Bengal Establishment.*
JAMESON, C. Esq. *Assistant Surgeon Madras Establishment.*
JEFFREYS, JULIUS, Esq. *Assistant Surgeon Bengal Establishment.*
JOHNSTON, JAMES, Esq. *Superintending Surgeon Bengal Establishment.*
JOHNSTONE, JAMES, M. D. *Assistant Surgeon Bengal Establishment.*
KEMBALL, V. C. Esq. *Superintending Surgeon Bombay Establishment.*
KENNEDY, RICHARD, M. D. *Surgeon Bombay Establishment.*
KING, GEORGE, Esq. *Surgeon Bengal Establishment.*

LAMB, GEORGE, Esq. *Surgeon Bengal Establishment.*
LANGSTAFF, JOSEPH, Esq. *Superintending Surgeon Bengal Establishment.*
LAWRANCE, J. Esq. *Asst. Surgeon Bombay Establishment.*
LAWRIE, J. A., M. D. *Asst. Surgeon Bengal Establishment.*
LEESE, JOHN VAUX, Esq. *Asst. Surgeon Bengal Establishment.*
LESLIE, JOHN, Esq. *Asst. Surgeon Bengal Establishment.*
LESLIE, WILLIAM, M. D. *Surgeon Bengal Establishment.*
LOVELL, M. Esq. *Asst. Surgeon Bengal Establishment.*
MACDONALD, EWEN, Esq. *Surgeon Bengal Establishment.*
MACDOWELL, J. Esq. *Superintending Surgeon Bengal Establishment.*
MACGAVESTON, JOHN, Esq. *Asst. Surgeon Bengal Establishment.*
MACGREGOR, W. LEWIS, M. D. *Asst. Surgeon Bengal Establishment.*
MACISAAC, ROBERT, Esq. *Asst. Surgeon Bengal Establishment.*
MACKINNON, CHARLES, Esq. *Bengal.*
MACKINNON, C. Esq. *Jun. Asst. Surgeon Bengal Establishment.*
MACKINNON, K., M. D. *Asst. Surgeon Bengal Establishment.*
MACKENZIE, H. Esq. *Asst. Surgeon Bengal Establishment.*
MACPHERSON, G. G. Esq. *Asst. Surgeon Bengal Establishment.*
MACLENNAN, J., M. D. *Surgeon Bombay Establishment.*
MCLEOD, BANNATYNE W., M. D. *Surgeon Bengal Establishment.*
MCLEOD, CHARLES, MURDOCK, Esq. *Asst. Surgeon Bengal Establishment.*
MCMORRIS, J. Esq. *Surgeon Bombay Establishment.*
MACQUEEN, KENNETH, Esq. *Surgeon Bengal Establishment.*
MACRITCHIE, W. D. Esq. *Surgeon St. Helena Establishment.*
MANLEY, JOSHUA, Esq. *Surgeon Bengal Establishment.*
MARDEN, THOMAS TODD, Esq. 1*st (late) Member Medical Board Bombay Establishment.*
MARTIN, JAMES, R. Esq. *Surgeon Bengal Establishment.*
MARTIN, R. M. Esq. *Surgeon, Calcutta.*
MAXWELL, J. A., M. D. *Superintending Surgeon Bombay Establishment.*
MAXWELL, CHARLES, Esq. *Asst. Surgeon Bengal Establishment.*
MEIK, JAMES, Esq. *(late)* 1*st Member Medical Board Bengal Establishment.*
MELLIS, JAMES, M. D. *Surgeon Bengal Establishment.*
MENZIES, JOHN, Esq. *Asst. Surgeon Bengal Establishment.*
MERCER, HUGH, S. Esq. *Surgeon Bengal Establishment.*
MITCHELSON, WILLIAM, Esq. *Asst. Surgeon Bengal Establishment.*
MONTEFIORE, A. J. Esq. *Asst. Surgeon Bombay Establishment.*
MONTGOMERIE, WILLIAM, Esq. *Asst. Surgeon Bengal Establishment.*
MORTON, JAMES, Esq. *Asst. Surgeon Bengal Establishment.*

Mouat, James, M. D. *Surgeon H. M. S.*
Munro, Tromas Munro, M. D. *Surgeon Bengal Establishment.*
Munt, C., M. D. *Surgeon (late) Serampore.*
Murray, Andrew, M. D. *Surgeon Bengal Establishment.*
Muston, William Pitt, Esq. *Surgeon Bengal Establishment.*
Nicolson, Simon, Esq. *Surgeon Bengal Establishment.*
Nisbet, Mathew, M. D. *Asst. Surgeon Bengal Establishment.*
Ogilvy, Alexander, Esq. 1*st Member Medical Board.*
Ogilvy, George, Esq. *Superintending Surgeon Bombay Establishment.*
Panton, William, Esq. *Surgeon Bengal Establishment.*
Paterson, John James, Esq. *Surgeon Bengal Establishment.*
Pearson, Alexander, M. D. *Surgeon to the H. C.'s Factory, Canton.*
Penman, J. A. Esq. *Surgeon, Calcutta.*
Pennington, R. B. Esq. *Surgeon Bengal Establishment.*
Phillips, Benjamin, Esq. 1*st (late) Member Medical Board, Bombay.*
Playfair, George, Esq. *Surgeon Bengal Establishment.*
Porteous, Alexander, Esq. *Surgeon, Calcutta.*
Preston, J. B. Esq. *Asst. Surgeon Madras Establishment.*
Puddicombe, R. D. Esq. *Asst. Surgeon Bengal.*
Raleigh, E. W. W. Esq. *Asst. Surgeon Bengal Establishment.*
Ramsay, David, Esq. *Surgeon Bengal Establishment.*
Ranken, James, M. D. *Surgeon Bengal Establishment.*
Ray, Charles, Esq. *Surgeon Bengal Establishment.*
Renny, Charles, Esq. *Surgeon Bengal Establishment.*
Renton, David, Esq. *Surgeon Bengal Establishment.*
Robertson, A. J. Esq. *Asst. Surgeon Bombay Establishment.*
Robinson, Charles, Esq. 3*d Member Medical Board Bengal Establishment.*
Robson, Thomas, Esq. *Asst. Surgeon Bombay Establishment.*
Roe, Henry, Esq. *Asst. Surgeon Bengal Establishment.*
Ronald, James, Esq. *Asst. Surgeon Bengal Establishment.*
Rooke, P. B. Esq. *Asst. Surgeon Bombay Establishment.*
Ross, Andrew, Esq. *Surgeon Bengal Establishment.*
Row, John, Esq. *Surgeon Bengal Establishment.*
Royle, John Forbes, Esq. *Asst. Surgeon Bengal Establishment.*
Russell, William, M. D. *Surgeon Bengal Establishment.*
Savage, John, Esq. *Surgeon Bengal Establishment.*
Scott, Alexander, Esq. *Surgeon Bengal Establishment.*
Scott, Charles, Esq. *Asst. Surgeon Bombay Establishment.*
Scoular, Thomas, Esq. *Asst. Surgeon Bombay Establishment.*
Sheppie, F. Esq. *Surgeon Bombay Establishment.*

Shaw, Richard, Esq. *Asst. Surgeon Bengal Establishment.*
Shutter, Thomas, Esq. *Asst. Surgeon Bengal Establishment.*
Simms, George, Esq. *Asst. Surgeon Bengal Establishment.*
Simson, Andrew, M. D. *Asst. Surgeon Bengal Establishment.*
Skipton, George, Esq. *Superintending Surgeon Bengal Establishment.*
Small, Beaumont D. Esq. *Asst. SurgeonBengal Establishment.*
Smith, John, Esq. *Surgeon Bengal Establishment.*
Smith, Alexander, M. D. *Asst. Surgeon Bengal Establishment.*
Smith, Alexander, M. D. *Asst. Surgeon His Majesty's Service.*
Smytton, George, M. D. *Surgeon Bombay Establishment.*
Spens, Thomas, M. D. *Asst. Surgeon Bengal Establishment.*
Spilsbury, George Green, Esq. *Surgeon Bengal Establishment.*
Sproule, Samuel, M. D. *2d Member Medical Board, Bombay.*
Stark, John, M. D. *Surgeon His Majesty's Service.*
Steel, J. Esq. *Asst. Surgeon Bengal Establishment.*
Stenhouse, Alexander, M. D. *Asst. Surgeon Bengal Establishment.*
Stevenson, William, Esq. Senior, *Asst. Surgeon Bengal Establishment.*
Stevenson, William, M. D. Junior, *Asst. Surgeon Bengal Establishment.*
Stewart, T. M. D. Esq. *Asst. Surgeon Bombay Establishment.*
Stewart, Duncan, M. D. *Asst. Surgeon Bengal Establishment.*
Storm, A. Esq. *Asst. Surgeon Bengal Establishment.*
Spry, H. H. Esq. *Asst. Surgeon Bengal Establishment.*
Strong, Francis Pemble, Esq. *Asst. Surgeon Bengal Establishment.*
Stuart, H. L. Esq. *Asst. Surgeon His Majesty's Service.*
Stuart, G. A. Esq. *Surgeon Bombay Establishment.*
Stuart, J. G. Esq. *Asst. Surgeon Bombay Establishment.*
Sully, C. B., M. D. *Asst. Surgeon Bengal Establishment.*
Swiney, John, M. D. *Surgeon Bengal Establishment.*
Taylor, H. Esq. *Asst. Surgeon Bengal Establishment.*
Taylor, James, Esq. *Asst. Surgeon Bengal Establishment.*
Thacker, W. Esq. *Messrs. Thacker & Co. Calcutta.*
Thomas, William, Esq. *Superintending Surgeon Bengal Establishment.*
Thompson, A. Esq. *Asst. Surgeon Penang Establishment.*
Thompson, William, M. D. *Surgeon His Majesty's Service.*
Thompson, James, Esq. *Surgeon Bengal Establishment.*
Thompson, William, Esq. Jun. *Asst. Surgeon Bengal Establishment.*
Thompson, James, Esq. *Asst. Surgeon His Majesty's Service.*
Todd, David, Esq. *Superintending Surgeon Bengal Establishment.*
Toke, John Syme, Esq. *Asst. Surgeon Bengal Establishment.*

TRAIN, W. Esq. *Surgeon Madras Establishment.*
TURNER, J. Esq. *Surgeon Bengal Establishment.*
TURNBULL, GAVIN, Esq. *Asst. Surgeon Bengal Establishment.*
TWEDDELL, H. M. Esq. *Asst. Surgeon Bengal Establishment.*
TWINING, WILLIAM, Esq. *Asst. Surgeon Bengal Establishment.*
TYTLER, JOHN, Esq. *Surgeon Bengal Establishment.*
TYTLER, ROBERT, M. D. *Surgeon Bengal Establishment.*
VENOUR, W. A., M. D. *Surgeon Bengal Establishment.*
WADDELL, GEORGE, M. D. *Asst. Surgeon Bengal Establishment.*
WALLICH, NATHANIEL, M. D. *Surgeon Bengal Establishment.*
WALKER, J. O. Esq. *Asst. Surgeon Bombay Establishment.*
WARDROP, ALEXANDER, M. D. *Asst. Surgeon Bengal Establishment.*
WARDLAW, B. D., M. D. *Asst. Surgeon Bengal Establishment.*
WARLOW, WILLIAM, Esq. *Asst. Surgeon Bengal Establishment.*
WATSON, WILLIAM, Esq. *Surgeon Bengal Establishment.*
WEBSTER, W. B., Esq. *Asst. Surgeon Bengal Establishment.*
WELCHMAN, C. W., M. D. *Asst. Surgeon Bengal Establishment.*
WHITAKER, STEPHEN, Esq. *Surgeon Penang Establishment.*
WHITE, W. R. Esq. *Surgeon His Majesty's Service.*
WIGHT, R. Esq. M. D. *Asst. Surgeon and Naturalist, Madras Establishment.*
WILLIAMS, RICHARD, Esq. *Superintending Surgeon Bengal Establishment.*
WILSON, A. Esq. *Asst. Surgeon Bengal Establishment.*
WILSON, HORACE HAYMAN, Esq. *Surgeon Bengal Establishment.*
WILSON, BENJAMIN, Esq. *Asst. Surgeon Bengal Establishment.*
WISE, T. A., M. D. *Asst. Surgeon Bengal Establishment.*
WOODBURN, DAVID, Esq. *Surgeon Bengal Establishment.*
WOODHOUSE, CHARLES THEODORE, Esq. *Asst. Surgeon Bengal Establishment.*
WOOLLEY, JOSEPH, Esq. *Surgeon Bengal Establishment.*
WYATT, J. H. Esq. *Asst. Surgeon Bengal Establishment.*
YEATMAN, E. J. Esq. *Asst. Surgeon Bengal Establishment.*
YOUNG, D. S. Esq. *Surgeon Madras Establishment.*

## CORRESPONDING MEMBERS.

G. ANDERSON, Esq. F. R. S. *and* F. A. S. E., *Secretary to the Northern Institution, Inverness.*
W. H. BENSON, Esq. *Honorable Company's Civil Service.*
RAMCOMEL SHEN, *Baboo, Calcutta.*
BOULANGER, M. *Naturalist to H. M. C. M. the King of France.*

## HONORARY MEMBERS.

Major-General Hardwicke, *Bengal Artillery.*

Honorable Sir C. E. Grey, *Knight, Chief Justice, Bengal.*

Sir Jas. McGregor, M. D. *Knight, Director General of the Army Medical Department, London.*

Andrew Duncan, M. D. *Professor of Materia Medica, University of Edinburgh.*

J. Abercrombie, M. D. *Physician, Edinburgh.*

J. Baron, M. D. *Physician, Gloucester.*

# OFFICE BEARERS

ELECTED FOR 1828.

A. GIBB, Esq. PRESIDENT.

H. H. WILSON, Esq. VICE-PRESIDENT.

J. ADAM, M. D. SECRETARY AND TREASURER.

W. TWINING, Esq. ASSISTANT DO. AND ASSISTANT DO.

J. GRANT, Esq.
P. BRETON, Esq.
G. WADDELL, M. D.
J. GRIERSON, Esq.

} MEMBERS OF THE COMMITTEE OF MANAGEMENT.

J. GRANT, Esq.
P. BRETON, Esq.
J. MELLIS, M. D.
G. WADDELL, M. D.
J. GRIERSON, Esq.

} MEMBERS OF THE COMMITTEE OF PAPERS.

## PATRONS.

MEMBERS OF THE MEDICAL BOARDS OF CALCUTTA, MADRAS, AND BOMBAY, DE OFFICIO.

# OFFICE BEARERS

ELECTED FOR 1829.

A. GIBB, Esq.

(SUCCEEDED BY)

A. OGILVY, Esq. PRESIDENT.

H. H. WILSON, Esq. VICE-PRESIDENT.

### HONORARY VICE-PRESIDENTS.

W. C. STERLING, Esq. 1st MEMBER OF ML. BD. MADRAS.

J. MILNE, Esq. DO. DO. DO. BOMBAY.

J. ADAM, M. D. SECRETARY AND TREASURER.

W. TWINING, Esq. ASSISTANT DO. AND ASSISTANT DO.

J. GRANT, Esq.
P. BRETON, Esq.
G. WADDELL, M. D.
C. C. EGERTON, Esq.

} MEMBERS OF THE COMMITTEE OF MANAGEMENT.

J. GRANT, Esq.
P. BRETON, Esq.
J. MELLIS, M. D.
G. WADDELL, M. D.
W. CAMERON, Esq.
C. C. EGERTON, Esq.

} MEMBERS OF THE COMMITTEE OF PAPERS.

# OFFICE BEARERS

ELECTED FOR 1830.

A. OGILVY, Esq. PRESIDENT.

H. H. WILSON, Esq. VICE-PRESIDENT.

HONORARY VICE-PRESIDENTS.

W. C. STERLING, Esq. FIRST MEMBER OF THE MEDICAL BOARD, MADRAS.

J. MILNE, M. D. Do. Do. Do. BOMBAY.

J. ADAM, M. D. SECRETARY AND TREASURER.

W. TWINING, Esq. ASSISTANT DO. AND ASSISTANT DO.

J. GRANT, Esq.
P. BRETON, Esq.
G. WADDELL, M. D.
C. C. EGERTON, Esq.
} MEMBERS OF THE COMMITTEE OF MANAGEMENT.

J. GRANT, Esq.
P. BRETON, Esq.
G. WADDELL, Esq. M. D.
C. C. EGERTON, Esq.
J. TYTLER, Esq.
D. STEWART, M. D.
} MEMBERS OF THE COMMITTEE OF PAPERS.

# CONTENTS.


Page.

I. On Lactucarium, or Lettuce Opium. By J. Graham, M. D. . 1
II. On Land Scurvy among the Natives. By B. Burt, M. D. 14
III. Case of Ischuria Renalis. By J. Bird, Esq. .. .. .. 21
IV. Case of Diseased Antrum Maxillare, with Excreted Larvæ. By W. L. McGregor, Esq. .. .. .. .. 28
V. Fatal Case of Epistaxis. By F. Sievwright, Esq. .. .. 3
VI. An account of the General and Medical Topography of the Neelgherries. By D. S. Young, Esq. .. .. .. 36
VII. A Case of Diabetes, with Observations. By R. H. Kennedy, M. D. .. .. .. .. .. .. 79
VIII. Case of Dislocation of the Humerus. By W. Twining, Esq. .. .. .. .. .. .. 106
IX. Notice of the Bela, Vilwa, or Bel. By Baboo Ram Comel Sen. .. .. .. .. .. .. .. 110
X. An account of the Nipal Ginseng. By N. Wallich, Esq., M. and Ph. D. .. .. .. .. .. .. 115
XI. On Public Health in India. By D. Butter, M. D. .. 121
XII. Use of Belladonna in Hydrophobia. By T. E. Baker, Esq. .. .. .. .. .. .. 157
XIII. Case of Dislocation of the Ossa Innominata. By T. E. Baker, Esq. .. .. .. .. .. .. 163
XIV. Observations on the Employment of large Doses of Ipecacuanha in Dysentery, without exciting Vomiting. By W. Twining, Esq. .. .. .. .. .. 170
XV. Case of Recto-Vesical Lithotomy. By G. Waddell, M. D. 221
XVI. Case of Hydrophobia in a Native Boy. By J. T. Pearson, Esq. .. .. .. .. .. .. .. 229
XVII. On the Poison of the Nagas. By P. Breton, Esq. .. 235
XVIII. Observations on the Medical Topography of Tirhoot. By J. Evans, Esq. .. .. .. .. .. 241
XIX. On the Efficacy of Emetic Tartar in Rheumatism. By J. B. Preston, Esq. .. .. .. .. .. 247
XX. Case of Uterine Disease. By J. B. Preston, Esq. .. 254
XXI. Case of Pancreatic Sarcoma. By J. O. Walker, Esq. 259

*Page.*

XXII. On Cholera Morbus in His Majesty's 14th Regiment, Berhampore. By J. Mouat, M. D. .. .. .. .. 265

XXIII. Report on Ophthalmia in His Majesty's 44th Regt. By W. Daunt, M D. .. .. .. .. .. 308

XXIV. On the Climate of the Jyntea Hills. By H. L. Beadon, M. D. .. .. .. .. .. .. 315

XXV. On the Epidemic Bronchitic Fever of Infants and young Children, prevalent in Calcutta during the Rains, or Months of June, July, and August, of 1828. By J. Adam, M. D. .. .. .. .. .. .. 320

XXVI. Case of a Singular Enlargement of the Skin and Cellular Membrane in a Native of Bengal. By J. Adam, M. D. .. .. .. .. .. .. 339

XXVII. A short Account of the Climate of the Deyrah Dhoon. By the Honorable F. J. Shore. .. .. .. 344

XXVIII. On the Operation for Cataract, unattended by the necessary Inflammation. By E. W. W. Raleigh, Esq. .. 350

XXIX. Remarks on the Climate of Mullye. By J. Tytler, Esq. 358

XXX. On the Climate, &c. of Pooree. By Dr. Brander. .. 377

XXXI Remarks on the Advantages to be derived from dilating the Pupil for the Operation Of Extraction of the Lens. By E. W. W. Raleigh, Esq. .. .. .. .. 385

XXXIII. Case of Popliteal Aneurism in a Native. By J. Lawrance, Esq. .. .. .. .. .. ..

## APPENDIX.

Map of the Neelgerries, .. .. .. .. .. 397

Note, pour etre jointe aux Echantilons des Plantes des Montagnes de Neligaret, .. .. .. 397

A Table, exhibiting the Monthly and Yearly Mean Temperature of the Air at Calcutta, Bombay, and Madras; at three several Elevations on the Neelgerries; at the Cape of Good Hope, New South Wales, and the City of London; with average Falls of Rain in England and the Neelgerries, 399

A Table of the Winds which prevailed on the Neelgerries, from the 1st Sept. 1825, till the 31st of August, 1826, with the quantity of Rain which fell during the same period .. 401

On the Properties of Lactucarium, the Produce of India. By W. Twining, Esq. .. .. .. .. .. 402

*Page.*

Extract of a Report on the Medicinal Garden at Mussoorea, addressed to the Honorable Sir C. Metcalfe, Bart. in charge of the H. C.'s Botanic Garden, Calcutta. By J. F. Royle, Esq. .. .. .. .. .. .. 406

On Small Pox and Vaccination. By J. Tytler, Esq. .. .. 422

Case of Poisoning by Laudanum, and on the Effects of a Native Poison. By F. H. Brett, Esq. .. .. .. 424

Case of Hydrophobia, in which the Symptoms were suspended by the exhibition of large Doses of Sulphuric Ether and Laudanum. By D. Butter, M. D. .. .. .. 426

Notices on the Kat-Karanja, Gulancha, and Rohuna. By H. Piddington, Esq. .. .. .. .. .. 429

Case of Diseased Heart. By E. J. Agnew, Esq. .. .. 439

Case of Lithotomy performed by a Native. By A. K. Lindsay, Esq. .. .. .. .. .. .. 440

Case of Snake-Bite. By H. Clarke, Esq. .. .. .. .. 442

# ON LACTUCARIUM,

OR

# LETTUCE OPIUM.

By J. GRAHAM, M. D.

*Presented May 5*, 1828.

As the subject of this paper has of late attracted a good deal of attention, I beg to submit the accompanying specimen, with the following remarks, to the notice of the Society. The sedative powers of the lettuce have been known from the remotest antiquity. Galen, it is said, used it as a soporific in his own case. More recently, Dr. Coxe of Philadelphia has the merit of first trying its effects on the animal economy. The interest, however, which it has lately excited, and the place which it has obtained in two of the British pharmacopœias, have been chiefly owing to the repeated strong recommendations of Dr. Duncan, senior, given to the profession at different times, in various publications.

As the milky secretion of the lettuce alone contains any medicinal properties, and as this is necessarily very scanty, and the labour of collecting it great, various methods have from time to time been proposed for obtaining the medicine on such reasonable terms

as would bring it within the reach of general practice. Of all the formulæ yet given, (unfortunately for the reputation of the drug,) those sanctioned by the London and Edinburgh colleges are unquestionably the worst. Mr. Young, a surgeon of Edinburgh, received some years ago a gold medal from the Horticultural Society of that place, for having prepared the greatest quantity for sale. After trying a sponge and camel-hair brush, he recommended, in preference to Dr. Howison's flash, that the juice should be collected by a common painter's brush, called a lash-tool. Mr. Probart, a London chemist, collected the juice on pieces of cloth: by means of these he impregnated water, and by evaporation obtained the inspissated juice. Finding, however, that this method was both tedious and attended with great expense, he prepared from the bark of the stalk and old leaves, by maceration and decoction, an extract, which he calls Extractum Lactucæ Concentratum, but which he admits is not equal to the former in strength.

However laudable it may be to endeavour to reduce the price of a medicine, no attempt can or should succeed, by which an article of inferior quality, and uncertain in its effects, is produced. The drug prepared according to the pharmacopœias is nothing more than the common sap, with a portion of the vegetable substance of the stalk inspissated, containing such a very minute portion of the milky secretion, that when taken in doses far exceeding those generally given, must either disappoint the practitioner

in producing no effect, or owing to some substitute adulterated with poppy opium being given, it may seem to produce disagreeable effects on the nervous system.

The specimen of lettuce opium which I now forward, has been prepared under my own superintendence, and will be found on trial, I trust, to possess sedative powers in a high degree. It is known to every one, that both the soil and climate influence the active properties of medicinal plants: and as this place and its neighbourhood produce the best Malwah opium, which is considered more strongly narcotic than that of Patna, and as the Coss lettuce seems to attain its greatest perfection here, I think it not unreasonable to suppose that its produce is of a good quality. If time and experience prove this to be correct, there will be but little difficulty in procuring any quantity; for already the natives of this place know it by the name of *Ballattee Uffeem**, and would willingly grow the lettuce and collect its juice on reasonable terms. The cultivation of the plant is attended with no difficulty, and resembles that of the poppy, only giving the lettuce sufficient space, (eight or ten inches asunder,) that they may be allowed to grow large, and not forced to run to seed too quickly. When the plant is about to flower, the milky secretion being then in the greatest abundance, it must be collected, and this is done in the following manner. Having a cup to contain the juice

* Foreign, or (as it may be interpreted) English Opium.

fixed on a stand, about one foot and a half high, and a couple of knives, one for collecting the milk, and another for cutting the stalk of the lettuce, you commence your operations by making a clean oblique division of the stem about an inch and a half from the top, when the milky secretion instantly exudes from both extremities, and must be taken up by the knife prepared for that purpose. You thus proceed by repeated similar divisions of the stalk, until all the juice is collected. The blade of the knife used for collecting the milk should have some elasticity, and be about two inches long by $\frac{3}{4}$ of an inch broad, with a blunt edge; for if sharp, there will be collected with the milk a considerable quantity of the substance of the stalk. The cup should have a cross bar, and contain a little water, which will enable the collector more readily to remove the adhesive juice from his knife. By making the division of the stem a little oblique, it gives a larger surface for the milk to exude on, and renders it more easily collected. The secreted juice is only contained in the vessels of the bark and leaves, and is pellucid until brought into contact with the air, when it immediately becomes milky, and if permitted to stand for a short time, assumes the appearance of a granulated mass, loses its adhesive qualities,and gradually assumes a brownish colour, like that of opium. Lactucarium prepared in this way is pure lettuce opium: its quality, however, depends much on the size and excellence of the lettuce. If this is either small or of an inferior quality, or if the juice is collected from sprouts

thrown out by old stems, it will contain a very great quantity of caoutchouc, what Mr. John of Berlin found on analysis to be its principal solid constituent: and as this seems to abound more or less in the drug, however prepared, it might be worth while to free it from this inert substance, were it not doubtful that it would, like most other extracts, have its medicinal efficacy impaired by any attempts to purify it. On trial it will be found, I think, that the mode of collecting the juice just described is preferable to the brush of Dr. Young, or the wove cloth as recommended by Mr. Probart: for though these remove the juice, perhaps more effectually, they separate its component parts, and it cannot easily be expressed from them again.

When the juice is fresh, and just taken from the plant, it is put into a small earthen dish, and allowed to stand in the shade until it acquires consistency enough to permit of its being formed into small cakes: and in doing this, to prevent its adhering to the hands, and dish on which it is laid, it is necessary to smear them with a little oil, as is done in the preparation of opium: the oil also tends to prevent the direct contact of the air, and thus lessens its tendency to mould in a moist state. When formed into cakes, its smell and other sensible qualities resemble those of opium; and like the latter its narcotic powers depend on an alkaline base similar to Morphia. I have ventured thus minutely to describe the process by which the accompanying specimen has been prepar-

ed, as I am induced to believe that the lettuce can be grown in this neighbourhood, and its juice collected, on much more reasonable terms than in England.

I now beg to offer a few remarks on the use and effects of Lactucarium, in cases where opium is contra-indicated, or where the constitution is rebellious to the latter. It is well known, that no class of medicines are more uncertain in their effects than narcotics, and that but few patients can take opium without suffering more or less from its effects on the nervous system, though given with every corrigent, and in every form and dose. Hyoscyamus, humulus, &c. are so uncertain in their operation, that a knowledge of a remedy which will with some degree of certainty procure sleep and allay pain, without being followed by any bad consequences or unpleasant feelings, becomes of great importance; and such I believe is Lactucarium, when properly prepared, and unadulterated. Its effects on the system were first brought to my notice in the case of a friend who had fortunately, when at Calcutta, obtained a small portion of it from Mr. Bathgate. As I cannot give a more faithful detail of the benefits which he experienced from its use than he has done, I shall content myself by giving a few extracts from a letter lately received from him on the subject. In speaking of the effects of some of the narcotics on his system, he observes: "Opium could never with me, in any dose, or by any management, be made to induce sleep: nothing more than quiet, and a species of wandering,

ever attended its use, whilst at the same time it never failed to produce next morning nervous feeling, irritation, nausea, and head-ache. Hyoscyamus, except in very large doses, and with the previous use of the warm bath, seldom succeeded in giving sound sleep. I never derived any benefit from the tincture of hops, whilst I always suffered nearly as much from nausea and other unpleasant feelings as from opium. "The two latter," continues my correspondent, "having failed in giving me that rest, the want of which so much retarded my recovery, I mentioned my having the Lactucarium, and you requested me at first to try it in small doses of three grains; and even in this quantity, it produced three or four hours refreshing sleep; and so far from any after unpleasant consequences, as with other narcotics, I felt refreshed, clear, and in better spirits, doubtless in a great measure attributable to the rest I had procured, the good effects of which had not at any rate been abated by the means taken to secure it. In the dose of four grains, it but seldom failed to give me six or seven hours sleep, without any unpleasant symptoms in the morning."—The same gentleman adds, "that in conquering a slight cough and expectoration, which had become chronic, and attended by want of rest, I took the medicine regularly for upwards of a month, without remarking any evil effect; and it certainly subdued the complaint, allaying the irritation which kept up the cough, and gradually diminishing the secretion of mucus; and I have used it with similar success, in the form of lozenges, amongst the natives." I can an-

swer for the correctness of the detail here given, and that my friend is superior to most individuals in minutely noting and describing his own sensations. Before concluding my extracts, I must beg to give the two following. One is taken from a note received from a gentleman, in whose case opium, independent of its unpleasant effects on the system, was contra-indicated by a slight inflammatory action in his pulmonary vessels, attended by a disagreeable cough. "I took, in the morning," he says, "four or five times, eight grains" (for a dose), "and sometimes thought the cough diminished by it, and sometimes not; and the reason I did not continue its use was, that I thought I felt nervous and trembling more than usual, though I confess it was just as likely to have proceeded from other causes. It is certain, however, that the quantity I took had not the effect every night, of giving sleep, and ease of cough." It is difficult perhaps to draw any conclusion from this statement: it shows, however, the safety of large doses; and I am inclined to think that my friend might have derived very considerable benefit from the remedy, had the "other causes" of excitement which he alludes to have been removed. The last extract which I shall give, is from a letter written by a gentleman, who from peculiar idiosyncracy of constitution cannot bear opium in any form. He says: "I was induced to try it," (a small quantity of Lactucarium which he had received from me,) "on account of sleepless nights owing to tooth-ache, and found it a good and speedy soporific, without any of the unpleasant effects of poppy opium."

The next case which I am anxious to bring to the notice of the Society, is that of a sepoy of Holkar's Contingent at this place, who labored under mental alienation, and who had not slept for several nights prior to his taking 15 grains of Lactucarium for a dose: this seemed to induce a calm refreshing sleep, and aided by blisters to his head, and attention to his bowels, restored him to his senses in a few days. In this case there were certainly no symptoms of high excitement; the patient was perfectly quiet and taciturn, and I am too well aware of the difficulty of forming any correct idea of the effects of a medicine, even after repeated trials and observations, to attempt drawing any but a doubtful inference from this solitary trial. We all know that many remedies have been strongly praised and recommended at different times by individuals of acknowledged abilities, which are now either forgotten or never used :—the very best proof that can be given that they did not possess the virtues ascribed to them. As opium, however, in maniacal cases, is very doubtful, and often injurious, in its effects, and as sleep is an object in every case of the greatest importance towards the recovery of the patient, and is generally procured with great difficulty, I trust Lactucarium may be considered worthy of a trial.

To point out the numerous cases in which lettuce opium is likely to be highly beneficial, would occupy more space than is due to such a communication as this, the object of which is rather to bring it to

the notice of the Society. Every medical man knows how frequently opium proves deleterious to his patient, in every form and dose, and that he is often anxious to allay pain, and procure sleep and quiet, but is afraid to venture on its exhibition, dreading its unpleasant consequences : in all such cases Lactucarium will be found a very valuable substitute. In alleviating pain and cough in pulmonary complaints—in rheumatic and inflammatory affections —in asthma—in chincough and croup, (see a case of the latter, as given by Dr. Duncan, senior, in Tulloch's Philosophical Magazine for 1821,) and other diseases of children—in colic, and to procure rest under the endurance of pain (as in tooth-ache)—in mania, and wherever the sedative effects of opium are required without its narcotic, Lactucarium will, I think, be found highly serviceable. How frequently in this country do we meet with patients absolutely worn out by repeated attacks of disease and the effects of the climate ; their spirits gone, their frames debilitated, and instead of enjoying during the night rest and sound sleep, doomed but to protracted watchfulness. Opium generally they cannot bear, and other narcotics have seldom any effect. If in such cases Lactucarium will induce sleep, (and I believe it will, without any unpleasant consequences the next morning,) it will be as highly gratifying to the practitioner to be in possession of such a remedy, as it will prove useful towards the recovery of his patient, who will awake refreshed with increased energy and vigour.

I have not yet been able to judge of the effects of lettuce opium on the bowels. It does not seem to possess any great astringent powers: perhaps it might prove useful as a sedative in diarrhœa, checking the frequency of the stools by allaying the increased action of the bowels.

I shall not add to the length of this paper by giving any account of other cases in which Lactucarium has been tried, and apparently with advantage; but in conclusion I must remark, that the doses stated in the Edinburgh and London dispensatories are in my opinion much too small, viz. from three to five, or from one to six grains, or from 10 to 60 drops of a tincture made with one ounce of Lactucarium to a pint of diluted alcohol. If these doses have reference to the drug prepared according to the formula given in these works, and sanctioned by their colleges, and if unadulterated by poppy opium, I do not believe that the utmost quantity stated, would be found to contain half a grain of pure lettuce opium, and consequently would disappoint the practitioner in giving his patient that relief which he expects. It will indeed be different, if either Mr. Young's or Mr. Probart's preparation is used: it was one of these which my friend, I suspected, obtained from Mr. Bathgate when in Calcutta, the effects of which proved that it was not inferior to any that has been prepared here. It is perhaps difficult to fix the dose, as this in a great measure depends on the constitution of the patient and the quality of the article used; but when pre-

pared with all care, I should say that four, eight, ten, or twelve grains may be given without apprehending any bad consequences. In one case, however, two grains proved an excellent sedative. As in maniacs the system is found capable of resisting medicines in their ordinary doses, the quantity may be double or treble that usually given. I have endeavoured to ascertain, by comparative experiments, the relative strength and effects of lettuce opium, as compared with that obtained from the poppy; but as the animals vomited both the drugs as often as they were made to swallow them, and before any decided effects were produced on their systems, I cannot as yet venture to give any opinion on their relative powers. In my next trials, however, I shall, after the medicines have been swallowed, put a ligature round the œsophagus, and thus hope to be more successful by preventing their being rejected from the stomach.

I send, as a sample, 16 ounces; and if I may be permitted to say any thing of its distribution, I would express a wish and a hope, that those members who may be desirous of giving it a trial, and who may be induced to take a portion of it for that purpose, will hereafter favor the Society with a report of their observations, and thus by their united testimony and experience decide on the merits of the drug. If it prove a valuable sedative and soporific, without any unplesant effects, any quantity I am sure might be obtained: and though I cannot say what the exact price of the article might be, if prepar-

ed by the natives, yet I am quite sure that the terms would be so very reasonable, that it would be brought (as a drug) within the reach of general practice, even amongst the poorer class of society, which can never be the case, if prepared in Europe according to the process I have adopted, and which gives the medicine pure, in a concentrated state, and of an uniform strength.

ON

# LAND SCURVY

## AMONG THE NATIVES.

By B. BURT, M. D.

*Presented April 7, 1827.*

THE Society having lately expressed a wish to be made acquainted with the symptoms of land scurvy among the natives, the following observations regarding its annual appearance in the insane hospital of Moorshedabad may prove acceptable.

My attention was first directed to this complaint in the beginning of the rains of 1822, in consequence of the severe ptyalism which followed the exhibition of a small dose of calomel to a patient complaining of slight fever. On farther enquiry, I found that the patient's gums had been ulcerated for several weeks before. A few cases of fever had come under my observation prior to this, in which 10 or 15 grains of calomel, combined with other cathartics, had produced ptyalism; and on referring back to those patients, I found that their gums had also been previously ulcerated. I have since observed it annually to appear during the rains and cold weather, and generally to disappear again in the hot.

It is very insidious in its progress, and I am inclined to think that it may have occurred in hospital prior to this, and been reported as fever or dysentery, these being the first symptoms of which the patient complains, although his gums may have been in an ulcerated state for months before.

There are two stages distinctly marked in this disease. The first commences with great depression of spirits, disinclination to take the least exercise; even to speak appears to be a burden to the patient. He gives up associating with his companions,or entering into any of their amusements, and prefers to sit moping all day long in the corner of his apartment, or sleeps a great deal. The strength and appetite are gradually impaired, pulse weak and slow, bowels regular, and evacuations of the natural appearance. As the disease advances, the countenance assumes a peculiar leucophlegmatic appearance, and very often the eyelids are œdematous in the mornings. Should the mouth be examined, the gums are found ulcerated and spongy, but not painful; the teeth in many instances loose. During this stage, which often continues for months, no complaint is in general made. In many cases, I have detected the disease only from the retired habits and peculiar leucophlegmatic look of the patient.

In the second stage, the patient first complains of slight fever during the night, accompanied with rheumatic pains of the joints; and if he has been

formerly subject to intermittent fever, it comes on in that form, and in the course of some days becomes continued. Skin is rough and dry, pulse small and quick, tongue white, bowels rather loose, with dark colored evacuations; sometimes, though not often, blotches appear on different parts of the body. As the debility increases, œdema of the feet and hands comes on, followed sometimes by hydrothorax, but more frequently by diarrhœa or dysentery, which soon puts an end to the patient's sufferings.

I was much puzzled at first to account for the appearance of this disease in an hospital where every thing in the shape of diet is fresh, and principally vegetables; and began to suspect that the provisions were either bad, or that the patients had been stinted of their just allowance, which consists of the following articles per day to each.

| *Rice.* | *Dhal, or split pease.* | *Dhaee, or curdled milk.* | *Oil.* | *Salt.* | *Pepper.* | *Tobacco.* |
|---|---|---|---|---|---|---|
| 1½ lbs. morning and evening. | 6 ounces morning and evening. | 6 ounces daily. | ½ ounce daily. | ½ ounce daily. | a small quantity. | ½ ounce daily for smoking. |

The quality of the above articles of diet was carefully examined, and found all good of their kinds; and for several months I daily visited the hospital at the diet hour, and saw that each patient received

his full share, which appeared ample enough. Besides the articles above enumerated, wheat flower cakes instead of rice, fresh fish, and sometimes animal food, were occasionally given to those who wished for a change of diet. The water of the wells was next examined, and although to all appearance pure and good, it was forbidden to be used, and the water from the jail wells was substituted for drinking and culinary purposes. It may be proper here to remark, that no cases of scurvy have ever occurred in the jail, which is only about 300 yards distant from the insane hospital.

Notwithstanding the above precautions having been taken, and at the same time accompanied with the free administration of lime juice, and other anti-scorbutics recommended by writers on scurvy, the disease was not wholly eradicated, but continued more or less till the commencement of the hot weather, when it disappeared. Patients affected with melancholia and mental imbecility, of retired and quiet dispositions, are principally subject to this disease. Those of lively and active, and even quarrelsome tempers, are seldom affected. The ground about the insane hospital and jail is marshy, producing abundant crops of rice, and remaining wet for nearly five months in the year. A worse situation could not have been chosen for those public institutions.

The plan of the insane hospital appears a very judicious one. It forms an oblong square, and has a

well raised verandah to shelter the patients from the sun and rain, which is open all round to the area within; and leading off from the verandah are separate apartments for each patient. No restraint is imposed on them farther than shutting them up in their respective cells during the night. In the day time they are allowed to walk about, and amuse themselves as they chuse. The number of patients generally in hospital is 36; and of these, ten or twelve are annually affected with scurvy.

Scurvy is now generally understood to depend more on a defect of nourishment than on a vitiated state of the provisions; and the reason assigned for salted provisions being so productive of scurvy, is because they are drained of the nutritious juices, which are extracted and run off in the brine. The scurvy which broke out among the European troops at Rangoon, and which I had an opportunity of seeing, differed from that which has come under my observation here, only in being more severe in its form. Living on salted provisions for six months, alone accounted for its appearance there, whatever share the notoriously wet climate of that place might have had in inducing or aggravating its symptoms. To account for its occurrence in this hospital, I am inclined to suppose, from its breaking out during the rains and cold weather, and generally disappearing in the hot and dry,—from its attacking the gloomy and dejected, while the lively and frolicsome, although subject to the same treatment and diet in every re-

spect, are free from it, that humidity and depression of spirits are the principal, if not the only exciting causes. These depress nervous energy, and induce a torpid action of the general functions of the body. The stomach and other digestive organs partaking of this diminished action, do not secrete a sufficient supply of chyle to nourish the body ; hence scurvy is induced.

The following treatment was successfully adopted. Regular and gentle exercise was strictly enjoined, and found highly beneficial. The patient was made to walk in the verandah for an hour, twice, and sometimes thrice a day. Bitters and tonics were given to increase the appetite : some change was also made in the diet; milk was freely given, fish and kid curry, or whatever little change the patient wished for, was complied with. Oranges being much relished, were freely given, when in season ; astringent gargles for the spongy gums. By pursuing this plan for some weeks, the progress of the disease was in general checked, and often disappeared. In the 2d, or fever stage, together with the above remedies, mild purgatives, such as magnesia, rhubarb, and castor oil, were found most useful in allaying the fever. Bark was also given in powder with advantage. Calomel, or any other preparation of mercury, should never be given in this complaint, as a few grains produce severe ptyalism, which rapidly increases the debility.

When dysentery or diarrhœa comes on, we can only palliate symptoms; and for this purpose the different preparations of opium will be found the most useful.

# CASE OF ISCHURIA RENALIS.

BY J. BIRD, Esq.

*Presented April 7, 1827.*

SUPPRESSION of urine from an affection of the kidneys is so rare a disease as to meet but seldom the observation of medical men; and though a few cases are to be found scattered through different periodical publications, there is reason to think that it is neither well known, nor generally understood. I remember hearing one of the most eminent surgeons in London relate, that being called to a gentleman who had been attacked with apoplexy, preceded by suppression of urine, and on whom Dr. Maton was in attendance, he was surprised to hear Dr. Maton say that it was a case of Ischuria Renalis, as he was until then ignorant of the name and nature of this disease. Such being the fact, my professional brethren will receive this communication as an effort to extend our acquaintance with a malady which is obscure in its origin, and looked upon more as an original affection than as a symptom, which it generally is.

First day. 18th Oct. 1818.—David James, an invalid of the garrison at Tannah, aged 50 years,

came into hospital, complaining that he made urine in very small quantity; not more than a tea-cup-full being passed in twenty-four hours. Had some nausea, but no fixed pain in any part. When first attacked, which was several hours previous to the time of his admission, he felt some uneasiness in the lumbar region, and was seized at the same time with vertigo; but having taken a draught of Tinct. Opii, with Spirit. Ether. Nitros. he felt easier. I ordered him a dose of castor oil; after the operation of which, the draught before given was to be repeated.

Second day.—The oil had operated freely, but there was no alteration in the state of the symptoms. The draught was repeated several times in the course of the day.

Third day.—The sensorium appeared much affected; as marked by a great inclination to sleep, an uncollected state of mind, and loss of memory. His eyes were of a suffused yellow color, and were slightly injected with blood. The pulse was full and slow, and there was a convulsive motion in the arm. The catheter was introduced into the bladder, which contained no urine. He was bled to the extent of xx. ounces, and after taking four grains of calomel with an equal quantity of antimonial powder, had a blister applied to the lumbar region. The blood drawn was cupped, and threw up a little buff.

Fourth day.—There was less affection of the sensorium; but the urine did not increase in quantity. A brisk purgative of calomel and compound powder of jalap being given, its effect could not be accurately ascertained. A blister was also applied to the nape of the neck.

Fifth day.—The affection of the sensorium increased; there was great inclination to sleep; and his tongue, which was brown, was covered by a horny crust. When told to shew it, he did not withdraw it again until ordered to do so. Several strong purgative medicines were given without any effect.

Sixth day.—The symptoms of coma continuing to increase, and his bowels remaining obstinately immoveable, purgative glysters were given very frequently, without any advantage.

Seventh day.—The symptoms continued to gain ground, and death followed towards the afternoon.

## DISSECTION.

Abdomen.—The stomach was much thickened; and its villous coat was unusually vascular. The liver, which was much enlarged, displaced the intestines, and had elongated the mesentery. The gall-bladder contained a dark ropy bile, of the appearance of tar. The spleen, which was enlarged to more than five times its natural size, was firm and fleshy. The duodenum contained much brown mu-

cus. The colon was contracted throughout its whole extent. The kidneys were enlarged to double their usual size, and were much altered in structure, having the pelves unnaturally small, and the mamillary processes so changed, as to be with difficulty distinguished from the generally diseased mass. In short, the impression left on the mind was, that urinary secretion had been performed very imperfectly for a long time previous to his death.

HEAD.—A general effusion of serous fluid had taken place throughout the substance of the brain, and into the lateral ventricles.

In cases similar to the preceding, vomiting and pain in the lumbar region have been observed to accompany the renal suppression of the urine; and the absence of these in the present instance, can only be accounted for, on the principle that a long residence in India, and intemperate habits, such as had operated in James's case, gradually exhaust the excitability of the constitution; and render it less sensibly alive to the impression of disease. To this cause we must ascribe the exemption of the patient from febrile symptoms; and also the extreme slowness of his pulse, in an affection where the cupped appearance of the blood plainly indicated the existence of inflammatory action. This inflammation in former instances, as ascertained by morbid anatomy, has been found in the kidneys, accompanied by enlargement of the liver; and the affection of the biliary

organs, during life, was well marked in these instances, by symptoms characteristic of its existence. The generally diseased and enlarged state of the kidneys in the preceding case, could leave no doubt of a chronic inflammation having existed there; which was accompanied by diseased circulation and secretion of the liver.

In the case of Ischuria Renalis described by Dr. Home in his clinical experiments, the patient had violent pain in his back and region of the liver; and on dissection, there was found inflammation of the pylorus and duodenum accompanying the inflammation of the right kidney. The former is a very common appearance in cases of hepatitis, producing death; and though Dr. Home says nothing about the liver, I cannot help thinking, that on minute examination, a deranged circulation of that organ would have been discovered to have existed. Another case, however, more decisively in favor of the opinion which I am anxious to impress on the profession, is to be found in Vol. ii. of the Edinburgh Medical Essays, detailed by Mr. Balderston, where the patient could not lie on the left side; a symptom decisive of disease in the right lobe of the liver. After death, the liver was found very large, but not hard; and the right kidney of a monstrous size, and the blood-vessels on its surface very red and turgid.

From a knowledge of these facts, and constantly observing the very deficient and painful secretion of

urine, in fever, and in most cases of hepatitis, with the extreme giddiness and languor, where there was congestion in the liver, I arrived at the conclusion, that Ischuria Renalis is more a general affection of the system, connected with diseased hepatic circulation, than a specific disease of the kidneys produced by inflammation. I am not prepared to deny, that there may be instances of this disease being original and uncomplicated; but in those where apoplexy and coma follow in its train, the liver and portal circle should, I think, occupy particular attention in the treatment.

Plethora, spasms, worms, mucus, and paralytic affection, have been each assigned as causes of Ischuria; and it has received as many different names accordingly. One or all these may be occasionally observed to influence this disease; which has its origin, however, more immediately from an increasing congestion in the liver, and other abdominal viscera; with a change, perhaps, in the elementary principles of the urine, and a temporary loss of excitability in the constitution.

Would it not, therefore, be advisable, after bleeding the patient, while immersed in a warm bath, and applying a blister to his loins, to administer calomel in ten grain doses, with such diuretics as determine to the skin, viz. Camphor mixture, and Spirit. ether. nitros. until soreness of the mouth followed? This certainly is the plan I would pursue in future, and

should recommend that the bowels be relieved by purging clysters. If no increased secretion of urine followed the purgative effect of the calomel, within twenty or thirty hours, the medicine should be repeated in a large dose, until its constitutional effect be obtained; and from my observation of this disease, I should anticipate a favorable result. Purging will undoubtedly be beneficial, but I should not be disposed to trust to that entirely; as spontaneous diarrhœa has accompanied cases of Ischuria Renalis without being of benefit. All the forms of opium ought, I think, to be excluded from the treatment, on account of the diseased secretion from the liver.

---

CASE OF

# DISEASED ANTRUM MAXILLARE,

WITH

EXCRETED LARVÆ.

BY W. L. McGREGOR, Esq.

*Presented April 7*, 1827.

T. T. ÆTAT. 35.—3d March, 1827.—States, that last night he was seized with excruciating pain in the inside of the nose, extending on each side to the cheek bones and temples. This continued to increase, till at length it became of the gnawing kind, giving a sensation, as if something were eating its way through his cheek bones and upper jaw. He now became almost delirious, and endeavoured, by expiring strongly through his nose, to eject the cause of his suffering: this he accomplished by successive efforts, and three or four worms (as he termed them) were discharged from the nostrils, perfectly alive. He had now some relief to his suffering, but the pain gradually returned, and it has continued, with little or no remission, during the night. At present the pain occupies the situation of the antrum maxillæ, extending laterally to the cheek-bones and upwards, as far as the temporal. Externally there is considerable swelling and redness; the left eye being completely shut, from the tumefaction of the surrounding parts. A bloody fluid,

of a most offensive smell, exudes from the nostrils; and previous to the discharge of the worms (larvæ) it is considerably increased in quantity. The patient is restless; a tremor pervades his whole body; his hands are constantly applied to the seat of the pain; and to add still further to his sufferings, he is literally covered with flies. The pulse is small and quick, skin cool. About eight years ago, he had the venereal disease, which has produced caries of the bones of the nose: in other respects he appears to be quite healthy. He had intermittent fever at Cheduba, from which he has completely recovered. The pain was first felt in the parts at present affected, while on the river, about three months ago: it was then relieved by leeches and blisters. He has had no return of it since that time, and has never passed any maggots till the present attack.

What he denominates worms, are evidently the larvæ or maggots of some insect, probably those of a species of musca, which had deposited its ova within the cavity of the antrum, rendered accessible by the effects of the venereal disease. The larvæ are fully half an inch in length, attenuated anteriorly; without feet, and annulated: posteriorly they are black; the rest of the body is white. On being touched, they move about very briskly; a black drop, of a fetid odor, exuding at the same time from their posterior extremity. The irritation produced by the presence of the larvæ sufficiently explains the degree of pain which the patient experienced, and which was of

course somewhat relieved by their being discharged. At first, leeches were applied, as the most likely means of affording relief to the external inflammation: these produced little effect on the most urgent symptoms. They were reapplied with much the same results. A warm cataplasm was then placed over the parts affected, and the following

℞. Ol. Olivæ, oz. ii.
Tinct. Opii. dr. i.
Ol. Tereb. gtt. viii. M.

was repeatedly injected up the nostrils. These applications were followed by the discharge of larvæ, with slight pain internally. The vapor of Aq. Ammoniæ was next tried as an errhine, and a considerable number of larvæ followed its application. On the second day, a drachm of sulphuric æther was poured on a pint of boiling water, and the vapor inhaled through the nostrils. In the course of this day, no less than sixty-four larvæ were discharged. Next morning, an infusion of tobacco, in the proportion of ten grains of the leaf to a pint of boiling water, was injected up the nostrils. The larvæ now appeared less lively, and their numbers rapidly diminished. On the fifth day from admission, the swelling had completely subsided, the pain was almost gone, and the patient expressed himself perfectly recovered. The number of larvæ discharged during the whole period amounted to upwards of one hundred, and they were all in a live state.

# FATAL CASE OF EPISTAXIS.

By F. SIEVWRIGHT, Esq.

*Presented April 7, 1827.*

CORPORAL JAMES AMBLER. Age 40. Depot Staff Corporal, H. M. 13th Light Infantry. Was admitted into hospital at 7 A. M. 28th September, 1826, with profuse bleeding from the nose, confined almost entirely to the right nostril. It commenced two hours previous, in his barrack room; and it appears he lost a large quantity of blood before he was brought to the hospital. Upon enquiry, he had been in a state of inebriety for several days, and on the 26th Sept. had fallen down a flight of stone steps in that condition, and injured the head and nose, marks of violence being evident on both. No hemorrhage, however, took place until this morning (28th Sept.) He is a stout made man, with a remarkably short neck.

7 A. M.—Wet cloths were applied to the head, and an attempt made to plug up the nostrils. A sense of suffocation however followed, and they were withdrawn. A dossil, dipped in Spt. Rectificati, was then introduced up the right nostril, which for a short time

succeeded in checking the hemorrhage. Afterwards a strong solution of Sulphat. Cupri. was repeatedly thrown up the nostrils by means of a syringe, part of which being inadvertently swallowed, produced great sickness at stomach. A probe and ligature attached was unsuccessfully attempted to be passed through the nostril into the mouth.

9 A. M.—When the bleeding ceased, a small quantity of wine and water was given ; the patient was exposed freely to a current of cool air, a damp cold sheet wrapped about the head and shoulders, and a cool acidulated drink allowed him.

5 P. M.—Since last report, the hemorrhage returned for a short time, but has again ceased of its own accord. Pulse very languid, surface warm ; has had some sleep. Bowels not moved since admission. A purgative enema ordered, and during the day he took repeated doses of the Decoct. Cinchonæ c. Acid Sulphuric Dilut. The blood from the commencement had evidently been arterial, at times coming by drops in quick succession, at others pouring forth in one continued stream.

29th Sept.—Passed a quiet night. No return of hemorrhage. Bowels still confined, which was remedied by the exhibition of a purgative. The decoction of bark, &c. continued, and he took some arrow-root and wine.

10 A. M.—Hemorrhage afresh, and to a considerable extent.—Got a draught with dr. i. Spt. Ætheris Sulphurici; some arrow-root and port wine. Bottles of hot water were applied to the hands and feet, and the draught was repeated as follows:

*R.* Spt. Ammoniæ Aromat. dr. i.
,, Lavandulæ Compositi,
,, Ætheris Sulphurici, *a a* gtt. xi.
Aquæ, oz. i.
Fiat haustus statim sumendus.

1 P. M.—The bleeding has stopped since 11 o'clock. Pulse very weak; feels occasionally very cold, accompanied by shivering. Bath with acid continued, in addition to which he is ordered oz. i. Mist. Camphoræ every hour.

5 P. M.—Pulse fuller, more animated. The sense of cold attended by shivering has disappeared; feels greatly better, and seems anxious to sleep. An anodyne draught ordered at eight o'clock. Every thing continued quiet, and he dropped asleep.

30th September. Passed a quiet night.

At 35 minutes past three o'clock this morning, experienced a sudden return of hemorrhage, and almost immediately expired.

## DISSECTION.

Seven hours after death, on removing the skull-cap, it was remarked how very easily this was accomplished after the bones had been sawed through, the dura

mater adhering to them in an unusually slight degree: this proved to be the case generally, even to the base of the cranium; so much so, that with no other assistance than what the fingers afforded, the whole of the dura mater was removed with as much facility as if the head had been macerated in water for six weeks.

At the first glance of the brain, a very different appearance presented itself from what might have been expected,—(a very deceitful appearance,) that of congestion! On examining the parts narrowly, however, a great many of the blood-vessels were quite empty; others contained a colorless fluid: there was a quantity of serous fluid on the surface of the brain, and a large proportion in the different cavities, in the lateral ventricles particularly. A quantity of liquid blood, intermixed with serous fluid, was effused on the left occiput, between the cranium and its membranes; and at the base of the skull, there were at least oz. ii. of limpid water:—no marks of fracture were here to be seen.

The skin and muscles were then dissected back from the face, and by means of a saw, a section made of the head. A large coagulum of blood was traced from the left nostril, communicating with the frontal sinus: there was a smaller coagulum on the opposite side, which in a similar manner appeared to communicate with the frontal sinus. Extensive

marks of severe contusion appeared on and in the vicinity of the ossa nasi. Prosecuting the inquiry, the antrum maxillare of the right side was examined, by cutting through and destroying the orbitary plate. The entire cavity was filled by a large coagulum of a dark brown color, and which had evidently been formed there for some time,—at the date of, or soon after the accident. This opinion is founded upon its color, and from the circumstance of a quantity of coagulable lymph being seen on its surface. The antrum on the left side was also looked at, by breaking down the orbitary process, and a smaller coagulum of the same description was found therein. The substance of the brain was firm. The quantity of serous fluid effused exceeded oz. vi.

---

AN ACCOUNT OF THE

# GENERAL AND MEDICAL TOPOGRAPHY

OF

# *THE NEELGERRIES.*

By D. S. YOUNG, Esq.

*Presented 7th July*, 1827.

THERE is, perhaps, no feature in the economy of our globe, in which the great fitness of things is so wonderfully manifested, as the means which Providence has afforded us of mitigating the evils of our situations, when accumulated on our head by physical causes, which human means cannot control. At La Guyra, the noblest spot on the globe, the traveller is only a few hours march from the town of Caraccas, which has been compared to the terrestrial paradise, the Ananco and neighbouring torrents being considered by the historiographer of Venezuela as the four rivers of the garden of Eden. In the great chains of the Himalayah and the Andes, every modification of climate presents itself to please the most fastidious ; even in the more favored climes of Europe, there are spots to which some peculiar virtues are attached, and to which the valetudinarian resorts with the assurance of speedy renovation.

At one period, and that not very distant, the Mount of Saint Thomas, near Madras, was considered the Montpellier of the south of India. After the fall of Seringapatam, and the consequent occupation of the elevated plains of Mysore by the British troops, the cantonment of Bangalore became the general resort of all classes, whose health required a change of climate; but it was not until lately, that the Neelgerries were explored by a few philanthropic individuals; who, in the enthusiasm created by the grand discovery they had made, gave to the world a faithful picture of what they had seen; and, though far less vivid in its coloring than the scene of magnificence which their wondering eyes beheld, no credit whatever was attached to it.—People were taken by surprise.—Some entirely disbelieved that such a country and climate could exist within twelve degrees of the equator: others, who understood the principle on which the temperature of elevated regions is regulated, could not conceive how the Neelgerries, so long within the limits of the Company's possessions, should have hitherto escaped our notice; and consequently presumed that their elevation was far less than it was described to be; and, but for the few disinterested persons alluded to, these celebrated mountains might have been consigned to the family vault of all the Capulets. To show how very easy it is to pass from the sublime to the ridiculous, idle gossip had been busy with the Neelgerries. It was confidently reported, and as eagerly believed, that there was a race of white giants on the

Neelgerries,—regular magicians and enchanters, who were governed by the giant Rawun himself; and consequently that it would be prudent to allow the Gogs and Magogs to remain in the undisturbed possession of their own cloud-wrapt summits. The reign of prejudice and scepticism, however, gradually gave way to the slow, but sure inductions of reason and philosophy; and the Indian community was at length awakened to a just sense of the blessings which were in store for it, by possessing in its own bosom, and within the reach of its members, an asylum, to which they might, under almost every form of disease, resort with every probability of advantage, and eventual recovery.

The intention of this paper is to lay before the Society an account of the medical and general topography of the Neelgerries; to submit full and accurate thermometrical observations, taken at different elevations in the tract of mountains so named; and to add such observations of a general nature, as may perhaps be useful to those of my fellow-countrymen who, like myself, may be induced to try the climate. May they be as fortunate as I have been! and find, in the air of the mountains, health and all its concomitant blessings,

The region of the Neelgerries may be defined to be that part of the great western range of ghauts, comprehended within the parallels of 11 and 12 degrees of north latitude, and 76 and 77 of east longitude.

Here it would appear, as if to rivet the grand connection between the two opposing chains, and to secure their integrity, nature had given to this tract a greater height and depth, and constituted it the crest or pinnacle of the peninsular Alps, from which the two ranges of lateral ghauts diverged, placing the high table-land of Mysore as a buttress to fill up the void at the angle of reflection to the north, so as to give solidity and permanency to the mass of almost perpendicular mountains which it has to support. The descent from the summit of Dodapet, the highest point of this noble crest, and 8700 feet above the level of the sea, being so sudden, that to the eye of the observer it presents a continuous mass of mural granite and gneiss, resting on the table-land of Mysore. As the inclination of all the mountainous countries is generally different on the opposite sides of the chain, being precipitous on one side, as in the present instance, towards Mysore, we shall find that, proceeding from Dodapet to the eastward, the traveller descends gradually for about 25 or 30 miles to Streemogah on the Coimbatoor plain, through an undulating country covered with the most luxuriant woods, and in which, as if to mark the particular zone, he meets with rhododendrons and ferns at every step. To the westward from the same remarkable summit, he may descend to Wynaad, and the province of Malabar ; the distance to the plains being about 17 miles, and the scenery and productions throughout in true keeping with their elevation.

To sum up the account of the boundaries of the Neelgerries, we find on the north, the table-land of Davaroypatam, a narrow tract divided from the table-lands of Mysore by the windings of the Moyar river, at the bottom of a deep and narrow wooded valley; on the south and east the open country of Coimbatoor; to the south west a branch of the Bhowany river, called the Mannar, which divides it from the mountains of Khoondah dependent on Malabar; on the west, the chains of ghauts defined by the Minkurty Peak; to the north west the windings of the Bukkarey river, one of the sources of the Moyar, from the table land of Wynaad.

The greatest length of the Neelgerries proper, is from east to west 36 miles, and a medium breadth of 15 miles,—in figure an irregular oblong, containing 469¼ square miles, of which 14 only may be said to be under cultivation. In this estimate, however, the Khoondah hills and table-lands dependent on Malabar, together with the extensive evacuations from the Neelgerries on all sides, are not considered. An even surface of great extent is not to be met with, the whole country being composed of ridges of various elevations, succeeding each other in an undulatory manner, and principally proceeding from a high chain of hills running in a north east and south west direction, and in its course projecting into the expanse, the eminences of Dodapet and Bewypet, from which the traveller may contemplate, one of

G. Pearson del.t

Printed at th
Park S

OF MYSORE
Dersh thundy Pass
Ramajundy Peak
Gajelhully Pass
11·30
Boodicoopa
Wheelhully
Rungasamm Peak
Danaikankola
Dimhully
Coondabetta
Jachanairy
Bovany R.
CANARA
PARUN
Bungalow
Serola
Cunjapahny
Seramoogay
11·20"
To Trichinopol
To Coimbatore
Nellitoray
Nelligoode
hermullay
5 1 2 3 4 5 6
Scale of Miles.
NEELGHERRIES. 1827.
77.

the grandest scenes in nature, and by revolving on his own axis, view the splendid exhibition around him with more than panoramic effect, tracing the boundaries already described with the eye, and with as much accuracy as he could on Mr. Ward's beautiful map now in the possession of Mr. Sullivan. Between the ridges, patches of the most lovely wood are generally found, nourished by the waters which percolate through these slopes, and which, by their conflux, form a running stream such as we meet with in the natural woods at home. The streams formed between the hills flow down on all sides, and in pursuing their course over the more precipitous parts form the most beautiful cascades; discharging themselves eventually into the Moyar river on the north, and the Bhowany on the south, the waters of which unite at the village of Poongar, three miles from the eastern base of the hills.

This elevated region is divided into three Naads, Parunganaad, Maikanaad, and Thodawanaad, besides a large tract of pasture lands called the Mullanaad, lying to the west of the Dodapettah range of hills, to which, during certain seasons of the year, the herds of buffaloes are driven for temporary pasturage. The population of these Naads has been estimated at 4000 souls, consisting of four classes or castes, viz. Buddagurs, Todawurs, Cottars, and Mullacoormburs, the last mentioned being the officiating priests to the other castes, who are employed in agricultural pursuits or in tending cattle, except in

the dependency of Mullanaad, which is exclusively appropriated by the Todawurs to the grazing of their buffaloes.

## BUDDAGURS.

The male Buddagurs are robust and tolerably well made, but in general so much addicted to the use of opium, that they very soon have the appearance of premature old age, and the peculiarity of countenance which that species of debauchery is known to produce. They have all the cunning of the Hindoo of the plains, and are covetous, suspicious, and unsociable, fond of money, and addicted to the true Mahrattah duplicity and falsehood, without one of the many redeeming qualities of that active and intelligent people. Fornication being privileged, jealousy is not known amongst them. Their dress is exceedingly uncouth; the men wrap round them a large sheet with colored borders, and on their heads they wear a handkerchief. They have gold rings in their ears, and altogether present very much the appearance of the lowest classes of Hindoos. Their diet consists of Koralay and Shamay, Gunjah or barley and Keray flower; the last mentioned is mixed with a little cold water, and may be considered their principal article of diet. They are very fond of garlic, and eat flesh on festive occasions; milk and rancid ghee being of too luxurious a nature to be frequently indulged in. Their women are perfect slaves, doing every sort of work except holding the plough and milking the cows. This

latter duty is considered of so sacred a nature, that the women are not even admitted into the place where the milk is kept. Their deities are Remgasawmy, Heradeo, and the goddess Hetadeo; also a subordinate deity called Kunkotu Harodea, or the eye-giving power: they have likewise their Mahalinga.

## TODAWURS.

It is impossible to conceive a more striking contrast to the Buddagurs, than is to be found in the fine race of Todawurs, who are the lords of the soil—the aborigines, and as highly distinguished by the nobility of their mien and deportment, and Herculean stature, as for the ingenuousness of their dispositions, and their innate love of liberty. With his foot on his native mountains, the Todawur is the most independent person in the world; and this feeling seems so wedded to every thing that is sacred to his character and essential to his happiness, that any attempt to coerce him, would soon break his fine spirit, and end in the extinction of his race and name. Look to America, and see what Spain has done for the Incas! It is with pride I revert from such contemplations to the humane and generous policy adopted towards this interesting people by their rulers. Their hereditary rights and immunities have been sedulously upheld; they are free from any thing like foreign invasion, and enjoy that love of liberty so inseparable from their nature, without restraint. The only attempt which

has ever been made to interfere with them has been dictated by a truly British feeling, and by that enlightened and generous system by which we have, through every obstacle, succeeded in rendering India happy. Female infanticide had prevailed amongst them; and as their own traditions proved beyond doubt, that it formed no part of their religious creed, so as to render its abolition incompatible with a due regard to its sacred injunctions, but was self-imposed at a particular crisis in their history, it became a matter of duty to endeavour to put a stop to a practice so revolting to humanity. How ably the views of Government have been seconded by the local authorities, it would be presumptive in me to determine; but there can be no doubt, that the grand object of its gracious interference has been effectually secured, without any indications, on the part of the Todawurs, of distrust or hostility towards the Government; and it is but fair to infer, that the good work was not accomplished without the greatest delicacy and address. We may therefore look forwards to a progressive increase to the numbers of this patriarchal race, since we have so admirably succeeded in putting down an evil, which, though gradually, was steadily leading to its entire and eventual extinction.

The Todawurs consider themselves to have been self-born, and have an idea that their ancestors, in primitive times, were the palankeen bearers to the Giant Rawun. Their sole occupation is the tending

*A Native of the Todawur Tribe inhabiting the*
Neelgherry Mountains.

their flocks of buffaloes, their kraals or Munds being generally situated in the most retired and sequestered parts of the mountains, close to a wood, or in the very centre of one, surrounded by fine forest trees, and such a spot as Rousseau would have selected from which to contemplate "the wild beauties of Switzerland."

The Todawurs are tall, robust, and well proportioned. They wear no turban: their hair is so thick, being kept about six inches long, that they require no other covering, and with their fine bushy beards and Roman noses, they have quite a venerable, heroic appearance*. Many have I seen who might have sat to Leonardo DaVinci, when he drew his celebrated picture of the "Last Supper," without diminishing the effect of that sublime production.

There are many circumstances connected with their modes of worship which I have omitted, for fear of being considered tedious; I may perhaps be permitted to remark, that they never use water with their food, but boil every thing in milk

## COTTARS.

This class is by far the most industrious of the indigenous inhabitants of the Neelgerries, being not only cultivators of the soil, but artisans, and acting as musicians on holidays. They have no objections

* Plate 1st represents a Todawur.

to carrying a palankeen, and are occasionally employed in this capacity by the European families on the hills. But they are extremely filthy, never allowing the limpid stream to approach their bodies! Their clothes are worn until they are literally rotten, and fall off in detail; their bodies are generally covered with vermin, and a crust of dirt is formed upon them, which they remove on festive occasions, so far and wide between, that the operation amounts to a sort of disrobing. The approach of one of this class is speedily indicated by the effluvium which arises from him, and which is any thing but agreeable to the organs of smell. They burn their dead, and worship the manes in some grove or shady place on the first anniversary after the casualty. Their idol is Coimbatadeo, which they worship in small thatched edifices, and to which offerings are made on certain occasions.

## MULLACOORMBURS.

The number of this class is very limited, but they are considered of nearly equal antiquity with the Todawurs. They cultivate the alluvial slopes and flats; but their ostensible employment is of a ghostly nature, being the officiating priests of the Buddagurs, with whom they assimilate very much in devotional and religious exercises and forms. They are anchorites, seldom go abroad, and only visit the villages from necessity, or in the exercise of their clerical functions.

There is still another race called Irrelurs, of a very low caste, inferior to the Chumbars, and if possible, more filthy than the Cottars. They inhabit the slopes and flats near the bottom of the hills, and cannot be considered as highlanders :—they worship Rungasawmy and the goddess Musula or Buttracalli, and make offerings of sheep at her shrine.

## GEOLOGY.

The formations have all the appearance of being primitive, though in a state of rapid decomposition. The surrounding masses of hills are composed of granite and gneiss, their summits principally of green stone. Quartz is also found in many places: and towards the bottom of the hills and ridges, on the cultivated slopes and plain surfaces, we find transition formations composed of the primitive rocks in a state of disintegration, and formed into conglomerate masses by an argillaceous cement of a yellow colour, and frequently of a lateritious nature. Amygdaloid and breccia are extensively distributed over the hills, and decomposed fels spar and quartz are found in great abundance in the form of a powder, which is a good substitute for lime as a white mark, and generally used as such. The open ground is covered with a coarse tufted grass, which on being removed frequently brings into view masses of laterite, and not unfrequently fine blocks of granite, undergoing a rapid decay, and having in many places the appearance of being rotten, and generally invested with a thick crust which is corroding it. No limestone has

yet been found on the heights, but transition formations of this description are to be met with in abundance at the bottom of the ghauts.

In the amygdaloid rocks, there are rich veins of iron ore; and very fine specimens of native gold have been found in the beds of rivers, at the wood of the western part of the Neelgerry range in Wynaad. (Vide Appendix, No 1.) The soil in the valleys is alluvial, a mixture of clay and sand formed by the *debris* of the elevated masses.

## ZOOLOGY.

Tigers, bears, elks, and wild sheep are found in the Neelgerries; the elephants which are so numerous in the jungles surrounding the tract, never have been known to ascend to the heights. Wild dogs hunt in packs, and have repeatedly been seen. There is also a species of goat which some of our sporting friends have seen, and though very desirous of procuring a specimen, they have hitherto eluded their search. In the ornithological department, most of the birds of the torrid zone are to be found; and we also meet with the blackbird and thrush, the tomtit and woodcock, (Scolopax Rusticola.)

M. Leschinault, a French naturalist, in a tour which he made of the Neelgerries, found no less than 200 " especes parmi lesquelles un grand nombre de nouvelles," (Appendix, No 2;) and as I hope Dr. Wright, our naturalist, will speedily carry into effect his intention of visiting the Neelgerries, any attempt of mine

to give information on this subject would prove worse than abortive, more particularly as the science of botany is one, of which, I regret to say, I only know the name.

## CLIMATE, SEASONS, &c.

Within twelve degrees of the equator, and surrounded by plains where the thermometer not unfrequently stands at more than 100° in the shade, it could scarcely be credited, that the climate of the Neelgerries should indicate a degree of mildness not inferior to the most temperate parts of Europe, if we did not know that to its elevated situation, it is indebted for the extraordinary immunity it enjoys from extreme heat, in common with other mountainous tracts of great elevation between the tropics. But the absence of great heat is not the only blessing which invalids enjoy in the Neelgerries. It is to the surprising equability of the temperature, that its uncommon salubrity is attributable, by which it adapts itself to every constitution, and proves so salutary in so many forms of disease. In this respect, the Neelgerries stand alone.

In the Cordilleras of equinoctial America, the transitions are great and sudden, and have their influence on human health. During a great part of the year, as proved by a reference to the accompanying tables in the appendix, the range of the thermometer on the Neelgerries is less than is known in

any part of the globe; and during the months of December, January, and February, the season of the greatest cold, it has never been known to exceed 28°, the minimum having been 31°, and the maximum 59° of Fahrenheit, including, between the extremes, a temperature which has always been found congenial to the European constitution, and very different in its effects from similar oscillations at a higher part of the mercurial column, as exhibited in all parts of the Deccan, and throughout India generally. During the rainy season the thermometer appears almost fixed; the range has been so low as $2\frac{1}{2}''$ for a whole month; and many supposed their thermometers were out of order, from the mercury having continued almost stationary for months together. Except the three cold months, the range will generally be from $2\frac{1}{2}°$ to 6° or at the most 10°, constituting the climate by far the most equable on the earth, and consequently the most favorable that could be selected for persons of a phthisical tendency. Invalids on reaching the hills in the cold season, feel the air of the mountains too rigorous; but to the healthy it is the period of the greatest enjoyment, when they can wander through the woods in search of game, and almost forget that they are still exiles from their country: such are the delights of a climate in a region where the scenery in point of beauty is unrivalled, where the notes of the blackbird and thrush are heard, as well as the song of the nightingale, and where every object is associated with the dearest recollections of one's native land of the mountain and flood.

The only winter on these mountains is experienced during this period; the grass which covers the downs and elevated ridges becoming yellow and seared; but the moment the frosts are over, about the end of February, the scene quickly resumes its verdant appearance, and the duties of the husbandman recommence just as the plains below are beginning to feel the desolating effect of the hot winds, and human nature almost sinks under the feelings which they excite. The climate of the Neelgerries may with great justice be called a perpetual spring. Vegetation is slow and steady except during the frosts: all nature's productions, though on the grand scale, are equally removed from a rank and stinted vegetation, and are distinguished by that sober caste, which characterizes the true medium of healthfulness and beauty. Notwithstanding the uncommon lowness of the thermometer during the whole year, sick persons cannot without risk expose themselves to the sun from 10 A. M. till 4 P. M.; and as the mornings are peculiarly inviting, they are recommended to take exercise either on foot or horseback, from 6 till 9 A. M. and from 5 till 7 P. M. confining themselves strictly to the house in the middle of the day, except during the delightful intervals of fine weather which prevail during the rains, when they may walk out at all hours with advantage. This precaution is only intended to apply to a state of actual sickness or debility; for persons in rude health may go out at all times and seasons. During the months of March, April, and May, there are refreshing showers; and I

have seen the thermometer fall considerably, on being brought into the open air whilst clouds were passing over us. I have not been able to procure an extended series of thermometrical observations taken in the sun; but such as I have had an opportunity of making, have, during the dry weather, exhibited an excess of from 25° to 12°, over and above what the indications were found to be in a verandah out of the sun's rays; consequently the maximum heat at Ootacamund in the sun during the year, may be stated at 85°, the maximum 66°, and the mean 76°. In taking observations of the heat in the sun, I have seen great mistakes to arise from the thermometer having been placed on the ground, within the influence of radiant caloric of great intensity, by which the mercury was propelled 20° higher than it would have been, if suspended merely in the rays of the sun, and beyond the sphere of any exciting medium but that to which it was submitted.

In the athletic appearance of the race of Todawurs, already described as the aborigines of the hills, we have a remarkable proof, that the climate of the Neelgerries owes little of its well merited celebrity to any circumstances of a transient or adventitious nature. In this fine race of people we recognise the completest developement of corporeal powers, and the finest forms of the human countenance, fostered and preserved up to the present time from a period of antiquity, too remote even for traditionary testimony to fix or define, within the limited boundaries of the

Neelgerries; and since our own experience is so much in favor of the climate, it is but reasonable to conclude that the Todawurs could not have maintained their pristine vigor and present high place in the scale of the animal creation, without the aid of a climate not only congenial to human existence, but such as to maintain and uphold it for ages without deterioration. To their native hills, they are more fondly attached than language can describe; and there is no inducement which could be held out to them, sufficiently powerful to break the tie which binds them to their flocks and pastures. I am not aware of an instance on record of a Todawur descending to the plains, which they compare to a consuming fire that would speedily destroy them; and I feel convinced, that nothing short of violence could tear them from the spot which gave them birth.

As a further proof of the benignity of the climate, may be adduced the regular appearance of woodcocks in the hills about the beginning of November, and their migrations from thence towards the end of March. The favorite haunts of these beautiful birds are to be found profusely scattered all over the Neelgerries; and during the last season 54 were shot, giving to the mountain sports a character truly English, and consequently heightening the impression which the climate is of itself calculated to make on the feelings. The Scolopax major, or great snipe, comes in with the woodcocks, and is very much allied to them in its manners and habits; specimens of both are re-

spectfully submitted to the Society. The woodcock weighed $12\frac{1}{2}$, and the snipe $6\frac{1}{2}$ ounces. The former was so severely wounded, that the skin is not so entire as I could wish; but it is still a very fair specimen of the bird as found on the Neelgerries.

In consequence of the hilly countries in most parts of India having proved so deleterious to health, and so often fatal to those who have resided in them, fears are entertained by men of great experience and judgment, that the Neelgerry tract may suddenly be visited by an endemic fever, by which its inhabitants and the visitors from different parts of India, may be unexpectedly involved in all the calamities proceeding from the ravages of a malignant fever. Though I feel sanguine, that there is abundant evidence of a permanency to the salubrity now enjoyed, it would ill become me to form any decided opinion on so intricate and important a subject; but I may be permitted, without directly impugning the high authorities alluded to, to proceed in my humble endeavors to establish at least some rational grounds for the belief, that under all the peculiar circumstances of climate and situation, in which the Neelgerries appear to claim an exemption from the fate which has invariably attended many other hilly countries; there are still others which may be brought forward in support of my fervent hope, that they may continue to an indefinite period to support their present high name.

It has been asserted, that between the tropics the line of miasmata extends only to a certain height from the plains, beyond which if there are table lands free from jungle, the climate is good. Humboldt says: "A serenity, uninterrupted during a great part of the year, prevails only in the low regions at the level of the sea, and at considerable heights on those vast table lands, where the uniform radiation of the soil seems to contribute to the perfect dissolution of vesicular vapors. The intermediate zone is at the same level as the first strata of clouds that surround the surface of the earth, and the climate of this zone, the temperature of which is so mild, is essentially misty and variable."

This serenity is in a great measure peculiar to the Neelgerries, and would be greater if their extent were not so circumscribed with an elevation of 8700 feet. On viewing the table lands of Mysore from Dodapet, clouds are seen far below floating above them, and the same phenomenon is observed whilst looking from Kotygerry towards the plains: they seem to rest on the intermediate zone, where the sky above is perfectly clear and free from vapor or humidity. The Neelgerries would appear to enter the higher or the healthy zone, between Seerloo and Jackanary on the Coimbatoor side; for at the former place, though 3500 feet in elevation and on the direct route from Coimbator to the highest point in the range, it is impossible for a native or European to sleep without getting a dangerous jungle fever; and this is the case at the same

height on the Wynaad side as well as the Mysore; but at Jackanary and the top of the Mysore pass, on opposite sides of the Neelgerries, the climate is perfectly healthy, and the traveller may repose himself at both places without risk or danger to his health, the height of Jackanary being 5000 above the level of the sea, and the Mysore pass nearly the same. The clouds overhanging the Mysore country have the appearance of a *drapeau blanc*, which from the undulations of their upper surfaces, seem to penetrate into all the natural recesses of the hills, and to invest the face of nature below with a splendid mantle of fine white clouds, in all the variety of convolutions of which the finest drapery is susceptible. Most of the hilly countries in India, so famous for fevers, are either entirely covered with almost impenetrable jungle, or are not of sufficient elevation, or with the advantage of height have no open table lands of any extent, and may be considered as in the intermediate or unhealthy zone. Seerloo, the place already described as 3500 in height, and on the Neelgerry range, was never known to have been a healthy place, and a great mortality prevailed among the coolies making the roads and the dawk carriers; and all the jungles surrounding the Neelgerries up to a certain height have steadily preserved the same hostility to man, and no doubt will always be equally unhealthy. May we not from these premises be allowed to indulge the hope, that the Neelgerries Proper, as being far above the intermediate zone, and open and free from jungle, with table lands,

may on a similar principle, continue to prove to the remotest times, the seat of health and the resort of those in search of its inestimable blessings? All travellers on their approach to the hills are strongly advised to pass through the jungles with the greatest rapidity, and particularly cautioned not to sleep on the hills until they reach Jackanary. The climate of Seerloo by the observations taken of the thermometer will be found to be mild, and (as Humboldt also says of the intermediate zone) essentially misty and variable.

The Neelgerries, as the crest of the ghauts from which the two ranges diverge, are exposed to the influence of both the S. W. and N. E. monsoons; and doubtless this circumstance must exert a modifying influence on the climate, not exclusively attributable to mere elevation, as it has been particularly remarked, that the rainy months on the hills were not only the most healthy, but that the intervals of fair weather, which often occurred at this season, were more lovely and cheering to the spirits than could easily be described. The first position is sufficiently illustrated by the great equability of the temperature, and I have only to refer my readers to the tables in the Appendix; but with respect to the other, I think we may in a great measure ascribe the exhilirating effects, produced by the adventitious occurrence of fair weather, to the power of novelty on the mind, heightened by contrasting the transitory gleams of sunshine with the gloomy aspect of the vault of heaven

during the periodical rains in all tropical countries. The moonlight nights during the months of March, April, and May, are quite indescribable, the thermometer in the open air frequently as low as 50°, the ground bespangled with glow-worms, giving to the scene that sort of brightness which our intrepid navigator Parry found in the arctic regions of America, when the sun was hidden from his view. Our great poet describes the moon sleeping on a bank: I might, with equal regard to nature, dwell on the beauties of the nocturnal landscape with the same fickle luminary sleeping on the lake, if I am to judge of the correctness of the image by the repose which the natives of the Neelgerries appear to enjoy, during the lovely nights already described. The velocity with which sound is conveyed surprises the stranger, but it is a phenomenon well understood by those who have travelled in mountainous countries. The elasticity of the animal spirits appears to be in a similar ratio with the air we imbibe; and I have witnessed paroxysms of the most extravagant mirth in persons who had previously been of a grave deportment, and who had long suffered from sickness sufficient to make any man serious. And it is not a little curious to remark, that the Todawurs, on whose manners and customs I have already perhaps too fully descanted, are distinguished for the uncommon gaiety of their dispositions, and an instinctive love of the ludicrous, which they evince by bursts of laughter, prolonged far beyond any powers of risibility known in any other class of people. Laughing with them can never be carried to

satiety, but appears to be an inherent and hereditary principle in their tempers, and a characteristic feature of their character. A Todawur is not satisfied with a good hearty laugh, when any thing of an amusing nature obtrudes itself on his sight or fancy, but goes to some retired spot, and throwing himself on his back on the ground, gives way without restraint, to his risible propensities, and indulges in them with all the zest with which a miser would revel amid his treasures, or an Englishman contemplate turtle-soup and roast beef at a Lord Mayor's feast! Momus seems indeed to preside at all Neelgerry parties, and it is not a little amusing to witness the ample justice done at the festive board, where every feeling but fastidious delicacy and sickly nicety is manifested; and yet with few exceptions the society on the hills is entirely composed of invalids! Such are the effects of a residence for a few months on the Neelgerries; and it is, indeed, impossible to dwell on all their wonderful sources of health and life, without recognising the finger of Providence in every circumstance, and he is indeed to be pitied, who with such wonderful proofs of the beneficence of the Almighty, can quit these celebrated mountains without pouring forth his endless gratitude to our bountiful Creator, who in the hour of need has so provided for suffering humanity.

In concluding that part of my statement which relates to the climate and seasons, I may be allowed to observe, that on the Neelgerries, there ap-

pears to exist a regulating influence over the temperature of the air, which must ever ensure its continuance at a healthy standard; for I have particularly observed, that the moment there appeared to be any tendency in the mercury to rise beyond 66°, clouds immediately collected to restore the equilibrium; and I feel perfectly satisfied, that the thermometer at Ootacamund will never, during the months of March, April, and May, rise to 68° without rain, and thunder and lightning, by which the air is cooled down at least to an average of 64° or a maximum of 66°: should future experience confirm this, we shall have another strong argument in favor of the salubrity of the Neelgerries, and a fair inference from it, that they are destined for ages to be an asylum for such as have lost their health in other parts of India, not only superseding expensive voyages to the Cape and the Isle of France, but in many cases, to be hereafter pointed out, a trip to the mother country.

The consideration of the diseases to which the mountaineers are subject, may be comprised in a very few words. The Buddagurs and Cottars complain of bowel complaints, which are produced by their meagre diet: the former take opium, which is their sole remedy for all ailments. The small pox is much dreaded by all classes, but has not prevailed for many years on the hills, if the absence of all marks on the face be considered as a fair criterion to go by. It appears to me very probable, that at some rather remote

period, this disease may have ravaged the hills and swept off many of its inhabitants, and that the horror with which its visitations are contemplated, may have been handed down from one generation to another, and thus perpetuated their feelings after its last traces had died away, with a race long ago numbered with the dead.—A very bad case of confluent small pox in the person of a woman from the low country, made its appearance in the hills; but strange to say, the disease went no further. The spasmodic cholera has never yet ascended the Neelgerries, though its ravages in every part of the surrounding country were of the most fatal and appalling description; and from all the information I have been able to obtain, the indigenous people of these aerial regions have, perhaps, less disease among them, than an equal number of human beings in any other part of the world.

During the months of March, April, and May, Europeans of both sexes are liable to catarrhal complaints, but I have never heard of an instance of these affections running into a fatal bronchitis; and I have the strongest conviction, that with common prudence the climate is as congenial to Europeans as any in the world. And many who have permanent abodes on the hills, and were regular fever subjects before their arrival, have never experienced a return that could not be traced to some elephant hunt below, or a temporary absence from the heights. The children born on the hills are the

most rosycheeked cherubs in the world, and in their appearance afford a striking example of the effects of this climate on their tender frames, in strengthening their constitutions and developing their stamina in embryo, instead of the squalid, bilious, and sickly child, which is to be met with at the presidencies.

The most singular virtue which this climate possesses, and that in an eminent degree, is the power which it appears to exert on women who have been barren. A very curious case occurred on the hills some time ago. The wife of an officer's servant had one child when very young, and for twenty years afterwards was barren. She accompanied her husband to the hills three years ago, and has since had two children. And I could adduce abundant proof of the wonderful effects of the climate on sterile women, but that I hope any further reference to facts may be unnecessary, recommending such as take a personal interest in the matter to visit the Neelgerries, where their fondest hopes will in all probability be realized.

Through the kindness of my friends, I have enjoyed opportunities of perusing a consecutive series of medical reports on the Neelgerries, from several years up to the present period; and with the exception of a few cases of syphilis in scrofulous subjects, and two cases of dysentery, there appear to have been no diseases (and the reports embraced a wide range) that did not

in a greater or less degree yield to the climate, and such failures as occurred were occasioned by the imprudence and indiscretion of the patients themselves.

Affections of the head, whether spontaneous or proceeding from wounds or injuries: obstructions in the liver, with fever; paralytic affections; the languor and debility proceeding from sedentary habits in a hot climate; constipation of the bowels from the same cause; phthisical tendencies; constitutional ulcers of an indolent nature; depravities of the habit; hypochondriasis, and bowel complaints; have all been cured or relieved by a twelvemonths' residence on the hills: and I have observed with astonishment, that many got rid of their complaints, though pursuing a course, not only in opposition to the instructions and advice of their medical attendant, but calculated to injure the very best constitution.

In the sequelæ of remittent or jungle fevers, I should suppose that a trip to the hills would be better and less expensive, than a voyage to the Isle of France or the Cape. This above all others is the climate to set up a poor fellow who has escaped from the jaws of death, with a system supersaturated with mercury, and a constant tendency to fever at the lunar periods, with every sort of distressing irregularity arising from the general torpor, induced by a fever which requires the constant use of aperient medicines. In a very few weeks, he will be enabled to discard all sorts of purgatives, and will find

the air a sufficient stimulus to his digestive organs. This brings me to notice some of the immediate effects experienced by invalids on first encountering the rarefied air of the mountains.

A sense of giddiness is felt to a distressing degree by many : this may arise from the stimulus of the air producing an unequal distribution of the blood ; and perhaps the parts which were more particularly affected during the violence of a fever or other acute complaint, may not be able to carry on the circulation under the new impetus which has been applied to it, with a power corresponding to other parts which had not been equally weakened. This feeling continues for some days, and requires very smart purging, and as much exercise on foot as the state of the patient will admit of. Those who have suffered from bilious fevers are very liable to the giddiness in question, as in these attacks, the head is usually much affected.

A bilious diarrhœa frequently attacks invalids on reaching the hills, more particularly such as have previously suffered from obstructions in the liver and habitual constipation of the bowels. In fact, this complaint is a sure indication of the sanative powers of the climate, and may therefore be considered ascritical and the precursor of good health, and a return to a regularity in the bowels. The accommodation provided for sick officers and families has hitherto been rather limited ; but the Madras Government have liberally come forward,and given large

advances to individuals who build on their own account, reimbursing the Company by moderate instalments. There are about ten houses being built, many of which will be ready before the 1st of June. The number of houses at Ootacamund now occupied by invalids is about sixteen; at Kotygerry, the station on the Coimbatoor side, six or seven; and one leading between the two places. Should the Bengal and Bombay Governments determine on having convalescent stations on the hills, we may expect to see houses and gardens making their appearance in every direction, giving to the Neelgerries the aspect of a large European colony. Mr. Johnstone, a respectable and industrious Englishman, has established a nursery and vegetable garden at Ootacamund, and now supplies all parts of India with a very superior description of culinary seeds. The hams made by him are considered by good judges as superior in flavor and freshness to the best imported from Yorkshire, and are sold at less than half their price. Potatoes are large and good, and sold on the hills from twelve anas to one rupee per maund of 28 pounds. To persons intending to visit the Neelgerries, a few hints may not be superfluous. Let them, in the first place, secure a house at Ootacamund if possible, as it is 2000 feet higher, a fair climate, and in every respect superior to Kotygerry. Every thing depends on an invalid's finding a comfortable house with a fire-place, and well furnished. When there is not time to have this arranged, a good tent ought to be taken, which during the dry weather may be made habitable. The same

wardrobe as a winter in England would require, ought to be provided, and servants should have warm clothing. The usual Europe supplies, such as beer, wines, &c. ought of course to be laid in. And as port will become a favorite beverage, I advise that a good supply of it be provided. In making arrangements for the transportation of baggage, it would be advisable to have every thing taken up to the hill by one set of people, without getting them relieved at Coimbatoor, or the bottom of the hill. The natives in their vicinity have objections to go to the heights, from some local prejudices and the dread of fever, which they frequently get, in consequence of making no provision in the clothing way for the great change of climate they experience in the course of a few hours. I speak feelingly, having been detained for three weeks within one day's run of my destination for want of coolies, bullocks, and bearers.

Considering how hostile the most healthy parts of India have proved to Europeans, it would be desirable to ascertain, how far this destructive influence could be lessened by forming establishments on the Neelgerries. The natural capabilities of the range are great and inexhaustible. Every thing that can be required for the use of man, is either furnished spontaneously by nature or could be procured by the industry of man. The woods contain the finest timbers for building, and the most costly kinds for furniture of every description. The pastures afford abundance of food for cattle and sheep. All the materials for build-

ing are scattered over the country in the greatest profusion. And the finest of our European vegetables already vie in luxuriance with the best productions of the parent country. From the barley grown in the hills, which is very cheap and plentiful, very good beer has been brewed; and if vineyards were formed on the high table lands of Davoyrapatam on the Mysore side, only a few miles from Ootacamund, the grapes might be brought up and made into wine, as the proper temperature could with certainty be commanded during the whole of the process. The loss of life and consequent loss of property to the Honorable Company would be greatly reduced, if regiments on arriving from England in times of peace, were climatized on the Neelgerries; and when the aggressions of hostile powes required their presence in a less genial climate, the change would be less felt, and the mortality much diminished; whilst in a moral point of view, our soldiery would speedily redeem the character which the institutions of their country and their own good feeling inculcate, but which too frequently is undermined by exposure to a vertical sun in a climate of the most enervating description, where manual exertion in the open air is death, and the finest faculties of the mind are paralysed by the temptations to intemperance offered to them, and the predisposition which the great heat induces to their free indulgence. Regiments which had suffered from hard service in the field, might be sent to the Neelgerries to nurse for a little. No doubt they would speedily acquire a good stock of health; and many men

who are now invalided and pensioned, might thus be saved to the service for some years as efficient men.

To such of the Honorable Company's civil and military servants as have outlived all their relations and friends in Europe, and to whom a return to England would amount to a species of banishment, the Neelgerries present a delightful asylum for the remainder of their lives,—a sort of Eurasian climate, and within a moderate distance from the friends of their adopted country, many of whom they may expect to see on the hills. I would recommend all persons so situated to apply for locations, and make a trip to the hills that they may fix on suitable ones. Many persons dread the cold winters of their native country: they too might settle permamently on the Neelgerries. Though many years must naturally elapse before the Neelgerries are done full justice to, I feel thoroughly convinced, that large public establishments must, sooner or later, be formed on them for invalids, &c. There is something so imposing in all that is connected with the Neelgerries, something so eloquent in the praises which grateful hearts bestow upon their climate, and something so truly British in every undertaking which has for its object the comfort and health of the brave defenders of their country, that a paternal Government, like that which sways the sceptre of India, must naturally avail itself of those vast sources of health, as well as moral and intellectual improvement, which these elevated tracts now present to its view in terms so inviting. In the same spirit it has been proposed,

that a large establishment of Eurasians or Indo-Britons might be formed here. The Neelgerry is altogether an unoccupied country, and this class might form a distinct society of their own. If sent to the hills when young, the climate might work a great change both in their physical and moral qualities. This race is so much on the increase, that in a few years our asylum societies will not be able to provide for them; and many are not eligible for admission into these institutions. It would be a very easy matter for Government to establish a branch of the asylum on the Neelgerries, say fifty boys, none of whom should be more than ten years of age. A large garden should belong to the establishment, which, under an intelligent superintendent, might, with the assistance of a few men, be cultivated by the boys. The produce would go far towards their own subsistence, and they would gradually acquire those habits, which would qualify them for cultivating the soil on their own account. On arriving at a certain period of life, grants of lands might be made to them; and left to their own resources, they would soon become a very influential class of subjects in all matters connected with agricultural pursuits. The expense to the Government in transferring part of the asylum to the hill, would be a mere trifle.

An invalid leaving Calcutta any time after the rains, would have a fair weather voyage to Calicut of 15 or 20 days, and in four easy night journies in a palankeen, would reach the highest summit of the Neel-

gerries by the new road from the Purrany river, a distance of 85 miles. From Bombay, the voyage at the same season is performed generally in six or eight days, with the same distance of land travelling. During the S. W. monsoon, the best place to land from either of these presidencies, would be Negapatam, about 200 miles of good road to the hills. As one or other of the coasts is always open, invalids would rarely find any difficulty in returning to their presidency or stations. From June to October the return journey would be overland through Mysore to Madras, and thence by sea to Calcutta.

In giving it as my opinion, that vineyards might be established on the table lands of Davroypatam about 6000 feet lower than Dodapet, I ought to have premised, that every attempt hitherto made to produce grapes at Ootacamund has proved nugatory. The plants grew, but showed no tendency to come into flower. Mr. Sullivan, whose philanthropic views led him to devote his talents and energies to every subject connected with the welfare and prosperity of the Neelgerries, had at a great expense introduced the apple, peach, and nectarine into his garden. The trees flourished, the blossom was abundant, and the fruit set with every promise of a fine crop, but with very few exceptions, never arrived at maturity. These facts give rise to some interesting speculations connected with the radiation of heat, in the atmosphere of this elevated region, which may not only explain the causes of failure, but suggest some improved horticultural system.

As I am not scientific enough to indulge in theories however plausible, I trust the society will permit me to give the following extracts from Daniel's Meteorological Essays, and after offering the results of my own observations on these hills, with regard to the power of the solar rays, at different seasons of the year, to endeavor to draw such inferences as the premises may suggest, in elucidation of those apparent defects in the fructifying influence of the climate, already noticed.

"It is well known to gardeners, that without the direct influence of the sun, whatever may be the temperature of the air, the fruits of the earth seldom come to perfection." It has been proved beyond doubt, that the force of the solar radiation increases from the equator to the poles, and from below upwards, though the latter fact is not corroborated by my observations on the Neelgerries.

"Captain Scoresby found it in the arctic regions in April to be 80° above the temperature of the air, which was 20°. At Melville Island, Captain Parry found it to be on the 25th March 55°, and on the same day at the same hour in London the maximum energy of the sun's rays was 49°. In England, in June its greatest force was 65°, when the maximum mean temperature was 69. 4°. At Bahia, with an almost vertical sun, the greatest intensity of the solar rays was only 47°. Captain Scoresby says the force of the sun's rays is remarkable in the arctic regions. Where

the rays fall on the snow-clad surface, they are reflected without producing any material elevation of temperature; but where they impinge on the black exterior of a ship, the pitch on one side gradually becomes fluid, whilst ice is rapidly being generated on the other. A thermometer placed on the black paint work, whilst the sun shines, is raised to 80° or 90°, and on the opposite side a cold of 20° is found to prevail. With regard to the greater energy of the solar rays upon a mountain than on a plain, M. De Saussure found it much greater on the Col du Geant than on the plain of Geneva; and at the summit of the Port Royal Ridge in Jamaica, at Mr Chisholm's house, 4000 feet above the sea, Captain Sabine found the thermometer, when exposed to the sun, to rise to 130°. When in the shade it was 73°; the difference of 57° exhibiting a much greater intensity of action than any that had been obtained at the level of the sea: for at Port Royal, when similar experiments were instituted, the mercury only rose to 123° on the 29th and 30th of August, whilst in the shade it was 86. 5°, giving 36. 5° as the power of the sun's rays above the temperature in the shade."

Mr. Daniel sums up his observations with the following emphatic sentences. "The heat of the sun thus sets limits to its energy by an admirable adjustment. The force of radiation is tempered in those regions, where its full perpendicular action would be destructive to vegetable existence, fully developed in climates where its utmost force is required to counterbalance the obliquity of its course."

It would indeed ill become so perfect a tyro as myself, to call in question the conclusion to which the experiments of Captain Sabine would lead, viz. that the power of the solar rays increases from below upwards. I have no means of judging what it is, on the plains of Coimbatoor, but on the Neelgerries I have never seen it exceed 25° degrees above the temperature in the shade, which I should think, was considerably below what it would be on the plains of India. In other respects my experience fully establishes Mr. Daniel's opinions; for the greatest intensity of the solar beams takes place in the months of December, January, and February, the period too of greatest cold on the Neelgerries. During these months the thermometer in the sun has been known to rise to 85° when it was 60° in the shade, the mean maximum being about 16°. In the months of March, April, and May, the period of greatest heats, the thermometer rarely rises above 82°, when 66° in the shade, and the mean is not more than 12°. In the months of January and February the blossom generally appears, and though much of it is destroyed by the night frosts, still a great deal of fruit is formed. Exposed alternately to the extremes of heat and cold, in the ratio of between 29° and 45° independent of the further depression from terrestrial radiation during the night, and during the day, to a temperature of 60°, increased to 82° or 85° by the energy of the solar rays, it is covered with bracks, through which the juices or gums necessary to its maturation exude, and thus a stop is prematurely

put to its further development, and it remains for an indefinite period in a half grown state, and eventually falls "still born" from the tree. The minimum of the solar power is about 8° from the mass of vapors with which the sky is overcast during the summer solstice; for, as already noticed, the regulating power which the climate of the Neelgerries appears to possess within itself is such, that the moment the thermometer rises above 67° in the shade, clouds form, and precipitation takes place to restore the equilibrium. It may therefore, be fairly inferred, that if the English fruits in question require so high a power in the solar rays, for bringing them to perfection in the countries where they may be considered indigenous, it is hopeless to expect that they can, under existing circumstances, ever be brought to perfection on the Neelgerries if allowed to flower during the cold months; and I even fear, that should we succeed on the principle of a "false winter," so common in India, in assisting the vegetative process until the frosts are over, there would not, in the hot months of March, April, and May, be power in the solar rays commensurate to the purposes of ripening the fruit, from the great prevalence of cloudy weather. Unless, therefore, we have hot-houses to neutralize the night frosts, we must relinquish all hope of ever seeing any thing like a Covent Garden market on the Neelgerries, except so far as relates to vegetables. And should we ever fall on a safe mode of suspending vegetation till the beginning of March, we would require to have our trees on walls blackened, so as to

increase the effect of the sun's rays at a period when they are weakest.

Since bringing my account of the General and Medical Topography of the Neelgerries to a close, a melancholy illustration of the notorious unhealthiness of the jungles by which they are surrounded, has obtruded itself on our notice. Mr. Alexander the medical officer, and a member of the Calcutta Medical Society, died at Bangalore on the 28th April last, from a fever which he caught in the forests between the bottom of the pass into the Mysore territories from Ootacamund, and the British Residency. Private affairs of an urgent nature requiring his presence at Madras, his impatience to proceed got the ascendancy of his better judgment and prudence, and though the authorities strenuously recommended him to wait until a dak was laid, he persisted in going on horseback almost without any preparation. Having been exposed, during two successive nights, to the air of the elephant jungles which during the dry season is highly pestilential, it was not very probable that even his naturally robust constitution could pass such an ordeal without injury. He arrived at Bangalore complaining of a pain in his right side, and was speedily laid up with a double tertian fever, attended from the onset by the most alarming symptoms. Gastritis supervened, and was met by copious depletion. The total freedom from pain, and absence of the usual exacerbations of fever, attended by a low and muttering delirium which ensued, but too clearly

evinced that mortification was in progress, and in this awful calm, he lingered from the 25th, till 4 in the evening of the 28th, when he expired, his abdomen much tumefied. From the high estimation in which this gentleman was held, and the suddenness of his death, which was the first annunciation of his having left his station, a good deal of alarm was excited, from the supposition that he died of a fever which he got on the Neelgerries; but I can declare, that as I was the last person whom he saw before descending the pass, no man could enjoy more robust health than he did up to the moment of our separation on the Mysore road. The precipitate manner of his departure was condemned by every person who heard of it, and he was earnestly advised by a medical friend to wait for the dak, which would carry him to Goondlepet, a distance of 26 miles, at one run, beyond which there was no risk of getting fever. As it is confidently reputed that a sanatarium on a liberal footing is shortly to be formed on the Neelgerries, the first object must be to have bearers posted in all the principal passes to the hills, so that sick officers may be transported through the forests in their immediate vicinity to the healthy zone in one run. The expense would be borne by the visitors. During the rains, however, the jungles are pretty salubrious, and the fevers if any at that season are very mild. The expense which would be saved to Government by this establishment is incalculable, as the greater number of subalterns who now repair to England would recover on the Neelgerries, and

their passage moneys be a clear gain to the Company. From what I have seen of the effects of the climate on invalids, I am of opinion, that in bad cases, a residence of twelve months on the hills would be necessary, and even more; but let me again remind those who visit the Neelgerries, that unless they can secure good houses with fire places, accommodations for servants, and every comfort and convenience which the climate of Great Britain would require, their situations must be worse than comfortless, and their hopes of an agreeable and renovating sojourn on the Neelgerries crowned with disappointment.

In submitting the following tables*, it has been my endeavour to lay before the Society, the fullest information on the important subject of temperature. The observations, taken on the Bowany river at the foot of the hills, at Seerloo and Jackanary, though not a simultaneous series, are still consecutive. Captain McPherson, who recorded them, and to whom I am indebted for the data, was employed in superintending the formation of roads, and visited his several posts frequently during the season of operations, where the observations registered at one station cease, they are pursued at the next, and so on, enabling me to give the means with considerable accuracy. At Ootacamund the register was kept with great care, and on comparing the results with those of former years and my own more recent observations, the discrepancies are not more than usually occur in all

* Vide Appendix.

countries and climates. The English registers in the table of monthly and yearly means are from Daniel's Meteorological Essays, and consequently have the highest character for correctness. The boundaries of the hills can be traced on the map, which I can with great confidence recommend as a faithful guide to those who may wish to be acquainted with their geographical position. It is to be hoped, that some scientific person may soon visit the Neelgerries, and that the Society may have barometrical and hygrometrical registers, to render our information regarding them more complete. It would have been a gratifying task for me to have supplied those desiderata, but until I have had some experience of the proper mode of using these instruments, my attempts, even if I had them, could only lead to fallacious results.

On commencing this paper, I had resolved to confine its numerous details within a much smaller compass than its present extent; but all my endeavours to that effect have only proved how vain it is a priore to assign limits to any undertaking of so comprehensive a nature, and in which so many interests are involved. I could still afford to give "more last words," but trust the Society will call my attention to such matters as may have been superficially treated; and I shall be proud to devote my humble efforts to any object of inquiry connected with the Neelgerries which they may point out as requiring further illustration.

A

# CASE OF DIABETES,

## WITH OBSERVATIONS.

By R. H. KENNEDY, M. D.

*Presented 5th May,* 1827.

THERE are few points in medical science more obscure, than the nice distinctions by which we may define the different stages of debility, so as to draw an accurate and practical conclusion from the appearances before us, and decide whether they indicate positive, or only symptomatic debility; and yet it is a subject of vital importance, and where error is so easy, and the consequences so disastrous, it behoves us to bestow a more than ordinary attention on the circumstances that may tend to illustrate these doubtful and perlexing symptoms. I gave the question much and very serious attention when preparing my Notes on Epidemic Cholera for publication, and as I have there stated my unqualified opinion, that the collapse in cholera is an instance of symptomatic debility, I hope that it may not be considered by

the Medical Society as a waste of time, if I proceed to give, as briefly as I can, the history of a case, whose peculiarities seem in some measure illustrative of my theory, and wherein the facts are not altogether unworthy of record.

It was in September 1814, when I was assistant surgeon of the 2d Battalion 3d Regiment Bombay Native Infantry, at that period forming part of the Garrison of Bombay, that I was consulted by Lieut. Col. W. C—. an officer then high on the General Staff under this establishment.

Lieut. Col. C— was forty years of age, had been twenty-three years in India, and had been employed during the chief part of that time on laborious duties. From 1807 to 1811, his occupations were of a peculiar nature, not only requiring much personal exertion, but being entirely out-of-door work, had occasioned a great degree of exposure to the sun, and had almost totally debarred all sedentary pursuits or recreations; but in August 1811 he was appointed to the General Staff, and at once changed his whole course of life, devoting himself entirely to the desk or to sedentary amusements, and scarcely ever moving out of his house but in a carriage. At this period a perfect mania for the game of chess prevailed throughout the Bombay establishment, but more particularly the presidency, and Col. C. was then the Philidor of the place. Directly opposite as these pursuits were to all Col. C.'s former habits, yet

as he was a man of very regular hours, and rather abstemious in his diet, he did not at first appear to suffer by so sudden and complete a change.

I saw him in May 1812, when he appeared in no way altered from what he had been in July 1811, when I first knew him: again in December 1812, and January 1813, having been myself driven to the presidency by fever, I lived those two months in his house, during which period he was in perfect health; but in May 1814, when the battalion to which I belonged was ordered to Bombay, I was sorry on meeting Col. C. to find he had been several months ill, and was truly distressed to observe his altered and meagre appearance; but his case was in other hands, and I heard no more from them, than "that his desk and sedentary habits were killing him, and that he was not long for this world unless he left India;" whilst he could give me no further account of his ailments than, that they told him he was only hypochondriacal, and he firmly believed they were right;—but he heartily wished his doctors would cure him, or put him in the way of curing himself, for he was as satisfied as they could wish him to be that his disease was chiefly of the mind; since excepting his debility and emaciation he did not know what was the matter with him beyond depression of spirits, but that was to a degree quite indescribable, and entirely unconnected with his feelings, and independant of his own inclinations.

It was, I have said above, in September, that I was consulted professionally, and his application to me rose out of the peremptory injunctions to quit India, which his former advisers enforced with the consolatory accompaniment, that it was the only chance he had for his life. People in this situation are not expected to be very punctilious in their proceedings, and it was at this crisis he applied to me. It was singular, how little the patient had to complain of; he had been told it was nothing but hypochondriasis, and he firmly believed so; but he was very far from considering hypochondriasis a light matter, and offered himself a ready subject for the trial of any experiment, or any theory I chose to practise upon him. His chief complaint was the indescribable depression of his spirits: he could sit for a day without speaking; it was not hysterical in any way, it was a moody melancholy, independent of external causes; he could reason himself at any time into exertions against it; he would join dinner parties, and could sometimes get through the evening without yielding to the melancholy; but at other times it would overcome his efforts, and then he would be seen sunk in his chair absorbed in his own reflections, and scarcely bestowing a look on what was passing, or a word in reply when spoken to. His head he said was not right, he had an indescribable sensation in the inside of it; it was not acute pain, but something like the uneasiness of wearing a tight hat; he never knew it better or worse, he

went to sleep with it, and he awoke with it; unless questioned about it he should not mention it, thinking it dependant on his low spirits; and occasioned solely by dejection; when desired however more particularly to recollect certain fits of abstraction which had occasioned him some inconvenience, he remembered that those paroxysms had been preceded by an increase of this uneasiness, sufficiently marked for him to have complained of headach.

Beyond these symptoms the patient had nothing to narrate; his emaciation was apparent, and of his debility no further proof was requisite than his appearance; it had been coming on during more than a year very slowly, and was now increasing in a very alarming degree. He had the whole period been in a slight measure troubled with constipation, and during the heats of April and May, his bowels were seldom evacuated without a small dose of rhubarb and magnesia taken over night; but since the rains fell in June, he was less troubled in this manner, and attributed the change to the dampness of the weather, which he had formerly observed acted upon him, when in health, so much as to induce him to resort to port wine as an astringent, during the severer periods of the monsoon.

He had no want of appetite, and had often felt ashamed to be complaining of so much sickness, when he found he could still take his usual meals, and confessed with some hesitation, that having been

jested with on this head, he was in the habit at one time of eating at home before he went out, that his active appetite, unimpaired by disease, might not be a subject of ridicule; but it occurring to him that this was giving way to his hypochondriasis, he returned to his usual habits and hours of eating.

On being particularly questioned as to the quantity he consumed, in reference to his appetite in former years, it was proved, that he took nearly double the quantity of breakfast he used to do; of his dinner in the evening he could not speak, having been debarred wine and fruit, and vegetable diet been recommended him, so that the difference of food prevented his speaking as to quantity. Of his luncheon, or tiffin at noon, however, he could give a very decided testimony: "when formerly," said he, "I used to be engaged abroad and in the sun all day, I never took any tiffin, a biscuit and a glass of wine and water was all I wanted, but on being recommended to take fruit, I find I have got the habit of eating an immense quantity of plantains in the middle of the day." This increase of consumption of food, he was inclined to attribute to his having left off wine, and he instanced one or two persons, who never taking wine, were evidently able to compensate the want of it, by an extra quantum of solids.

In respect to the treatment of his case, he had been hitherto told it was a decided one of bilious obstruction; he had been well dosed with calomel

three several times, to the extent of incipient ptyalism, and then well drenched with tonic infusions; he was sensible of becoming worse under both systems, but so much more decidedly so under the latter than the former, that more calomel was in agitation, but an immediate change of climate was declared to be the sole step that offered any reasonable hope of convalescence.

For my own opinion, I am free to confess I had little hope that even this would save the patient; his appearance was precisely that of one in the last stage of consumption, or in the crisis of a diarrhœa, pale, shrunk, and emaciated; whilst the extraordinary history of his complaints offering no satisfactory explanation whatever for such a decay, the ignorance in which I found myself as to the seat of disease, served only to confound and perplex me with the distressing reflection, that at so critical a period, the decision and promptness by which alone, as it seemed to me, the patient could be saved, were absolutely out of my power.

I had still a few questions to ask. I am one of those who, when the object is to save a patient's life, care very little whether he be pleased or otherwise with the manner in which it is done, so that I am satisfied within myself of no indecorous harshness, or idle curiosity; and in probing a wound, am more solicitous to ascertain its real extent, than to display my tenderness at the hazard of my patient's safety.

Further I am very indifferent at the apprehension of my readers exclaiming, "O tempora, O mores! a libel on modern manners!" when I add, that when symptoms, difficult to be explained, have occurred in elderly gentlemen of 20 years' and upwards residence in India, I have always, instead of putting the questions direct, What are your habits as to venereal appetite? and have you ever taken preparations of lyttæ, or submitted to any native quackery? rather endeavoured to arrive at the truth by artful interrogation; for there are some patients who will die rather than confess their folly, or at least the absurdity is acknowledged when too late.

The result of a close inquiry into symptoms here was, first, that I discovered with infinite difficulty the fact of my patient having been for about two years the reverse of what Horace calls "muneribus veneris potens," and that for the past year he had in no one instance indulged, in fact he had never felt the inclination, perhaps did not possess the power. The course of this examination brought out, that there was very frequently an itchy sensation at the orifice of the urethra, and that the prepuce had several times swollen, and seemed dropsical, but that this had never lasted beyond a day or two, and had always gone off without any local application; he thought it dependant on the mercury he had taken, and which he said was still in his constitution, for his mouth would sometimes be very sore for several days together, gums swollen and bleeding, and whenever this tenderness

occurred in his mouth, the uneasiness in the urethra and prepuce were sure to accompany it.

Finally, on being questioned as to the nature of his rest, and respecting his being troubled with incubus or dreams, it was replied, he suffered nothing worth particular mention ; one so gloomy and uncomfortable all day, could not of course sleep so well as another who had no constitutional depression of spirits, but that he thought he would sleep pretty nearly the whole time, were he not disturbed at least half a dozen times through the night, from the frequent calls for micturition : on inquiry how often these occurred, and the quantity of urine voided, he replied he could answer neither, the first no nearer than five or six times, and the other not at all ; his bathing room adjoining his bed room, he had never used any urinal, but merely stept to the drain of the bathing place. This important fact coming out purely by accident, will I hope convey in as clear a way as I would wish it the treacherous character of the disease ; no one had ever suspected or thought of diabetes, which the disorder was soon proved to be ; for the patient being desired to use an urinal, he passed in the night five pounds, nine ounces of urine in six evacuations ; the discharge a pale straw color, totally devoid of urinous smell, or any sediment whatever, and, I took the patient's word for it, without taste ; the smell was a very very faint odor of honey and water, and being carefully evaporated yielded three

ounces and a half, by measure, of a ropy kind of mucilage of a dark reddish brown color, and more like very foul honey than any thing else I ever saw, and what was odd, it had acquired the true empyreumatic odor of burnt sugar; the patient, however, discovered no saccharine flavor, on the contrary said it was salt, but more like the saltiness of alum than any thing else he could describe.

On this result, a consultation was called, and the decision was immediate, that the case was diabetes; and the usual system of debarring saccharine and vegetable food was suggested, with mercurials as alteratives to the extent of long kept up ptyalism; which it was observed might also act upon the hepatic system, the real original of all disorders, the root in fact of all evil in India.

I had happily risen some cent. per cent. during this process in the patient's estimation, who had further a more than ordinary horror of a sore mouth; and as I saw no good to be expected from it, I opposed this recommendation stoutly, and succeeded in having a modified system, in some degree formed on the valuable and scientific histories of Dr. Watt of Glasgow, substituted in its place. On this principle 50 leeches were applied to the loins of the patient, and the same evening a large blister about a foot long and eight inches broad over the whole lumbar region, which as it was laid over the wounds left by

the leeches was very severe in its operation: as an alterative a course of lime water and subcarbonate of ammonia was commenced, and continued for fifteen days; the dose of the latter being increased from half a scruple, at the rate of five grains each day, until the tenth day, after which it remained at dr. i. per diem; and the lime water, which was commenced at oz. vi. increased at the rate of oz. i. each day, until the tenth, when it remained at one pound daily. There never was a more complete failure. The patient, who had never before complained seriously of thirst, now felt it as his chief annoyance, so that it required all his firmness to avoid indulging it: meanwhile the diabetic discharge was increased in quantity, from ten pounds in the twenty-four hours, to seventeen pounds, and was daily increasing; and the irritability of the urinary organs was also so increased, that the times of micturition were 25, 26, and 27, in the last three days. In the meanwhile the patient had none of the dislike felt by Dr. Watt's patients for their meat diet; he took his with perfect satisfaction, and only complained of it as he attributed his increased thirst to this cause; but what appeared to me very singular, he declared himself to be feeling better, when he was palpably in every respect worse: he was happier, he said, in mind than he had felt for months; his headach was certainly not so distressing, and that if his eyes had not been opened to the real nature of his disease, he should have declared himself better, from being so distinctly conscious of his headach, and hypochondriacal feelings being less

urgent; and, in reference to this improved state of feelings, as compared with the aggravated appearance of the diabetic symptoms, he became reminded that, when a year before, these uneasy sensations about the head had first become distressing, at that time he would occasionally take, on rising in the morning, a small dose of Epsom salts for relief, and had been struck by observing, what he considered a very singular circumstance, that when the dose was too mild to operate as a purgative, and seemed only to act as a diuretic, the effect upon the kidneys seemed most inordinate, and that his head was more decidedly benefited by the urinary, than the alvine evacuations.

Unhappily, though the patient felt relieved, and declared himself better, he was in reality in every respect worse; his strength was rapidly failing, and as a decisive proof of emaciation, he had in fifteen days lost four pounds weight; whilst his appearance became such as excited alarm among his friends.

At this period I was as desirous as the most anxious of them, to meet other professional men in consultation; but I was now as firmly convinced that his only chance of recovery was the bleeding system of Dr. Watt, as I was sure that I could get no one to join me in such unflinching practice. The emphatic refusal to bleed*, under less appalling cir-

* Dr. Rollo wished only to take away three or four ounces of blood experimentally, to ascertain its quality: the person with whom he

cumstances, which Dr. Rollo received would, I knew, have been the result of the consultation, and in case of any unhappy termination, would have left the burden of the catastrophe with double responsibility on myself; but at this critical juncture, Col. C. declared, that his feelings proved his case to have been misunderstood for nearly eighteen months, deprecated any interference with me or my practice, and with mock gravity wrote out a paper refusing peremptorily to see any one save myself, and declaring his entire satisfaction with what had been done, and his firm confidence in what was to be done, and that if he died, it would be in the firm assurance that nothing had been omitted that art could do for him.

The work of Dr. Watt was then new, and independent of its not having become, what it now is, or ought to be, a classic in every medical library, the emaciated and feeble state of my patient rendered the idea of abstracting blood out of what seemed a bloodless "living anatomy" of skin and bone, the most startling and anomalous proceeding that can be imagined. In the midst of my solicitude it occurred to me, that the feelings most distressful to the patient were in reality to a certain degree relieved by the inordinate diabetic discharge; that this discharge was of course a secretion by the kidneys from the circulating fluid, and that the effect of this

consulted replied, "That unless upon a criminal having the disease, no request, and no one's opinion, could induce him to bleed in such a case." p. 19.

secretion must be a diminution of the circulating fluid, in proportion to the amount of the diabetic discharge, and that the experiment was worth trying, whether bleeding would or would not interrupt the diseased action, and prevent that determination of blood to the kidneys, without which, such an unnatural discharge could not take place. I am not aware that this is distinctly stated by Dr. Watt, as the groundwork of his plan of treatment, for I was perplexed beyond measure, and a long time in understanding the reason of his success; perhaps he thought it clear enough to be understood, without particular explanation, from the valuable histories he details: unfortunately for me, I did not at first comprehend the important fact to be applicable here, which I now wish to suggest as an axiom in medical science, viz. That where nature induces an inordinate discharge of any natural secretion, it is a sanatory process to reduce, by her own healing powers, some local or general irritability; and that the safest mode of treatment is to substitute an artificial discharge in the place of the increased natural one, and by so doing, to follow the path prescribed by nature, and restore the balance of the constitution.

It was under this feeling, and encouraged by the statements of Dr. Watt, that I suggested venesection, and accordingly on the 20th September, extracted oz. xii. of blood from the arm. I never in my life witnessed so singular an instance of immediate relief:

the copious bleedings we sometimes are compelled to have recourse to after accidents, such as blows on the head and severe falls, though they do occasionally operate like magic, yet never have, under my observation, acted so indubitably and instantaneously as did the bleeding in this case; the patient, though so weak and reduced, sat up during the operation, and never felt the slightest degree of faintness, the pulse before bleeding was 84, weak and tremulous, after it 78, and about an hour afterwards 80, with a firm distinct beat. Describing his feelings, he said energetically, that he felt himself relieved, to a degree of which he could not find language to convey any idea; he was better than he had ever hoped to be again, better than he had felt for some years: his headach had always felt like the cutting uneasiness experienced when travelling with too tight a hat; he felt as if this were taken off, and he were at once entirely relieved. As the best possible proof of the revival of his spirits, he of his own accord ordered his pleasure boat, and though he was only bled at noon, he went in his carriage the same evening at six, to call on a female relative, and taking her with him, drove to the pier, embarked there in his boat, and spent an hour sailing in the harbour, speaking of nothing but the singular difference in his feelings, and that life once more was a pleasure instead of a burden. A blister was applied in the evening over the lumbar region, and kept on 12 hours, and the course of ammonia and lime water discontinued.

In the morning, instead of having had an evacuation every hour, and passing nine pounds of urine, as had been the case the night previous, he had only been up four times, and had not passed quite four pounds ten ounces; the total discharge in the 24 hours, after bleeding, was reduced to nine pounds, the times of evacuation to ten; the urine, however, was not in the slightest degree improved, the smell was altogether unnatural, and on being evaporated, yielded exactly the same gummy residuum with empyreumatic odor as formerly; from the heat of the weather, which was intense, the blood could not be kept sufficiently long to describe with perfect accuracy its changes and appearance, but it may generally be observed, that no buffy coat formed, and that the crassamentum had an unnatural softness. I shall give the rest of the history from the original memorandums made at the time in my journal.

*September 22d.*—The patient is not so well as yesterday, the uneasiness in the head partially returned. Urine discharged in the last 24 hours $9\frac{1}{4}$ pounds at thirteen evacuations. The patient so perfectly convinced of the benefit received by the last bleeding as to be most urgent for its being repeated*: at his earnest request take oz. xii. of blood from the left arm; pulse before bleeding 80, after it 72, relief complete as before, no buffy coat on the blood, unheal-

* He accosted me as I entered the room with "I hope you have brought a lancet; I must be bled again, I am getting as bad as ever." On my asking further information, he was quite untractable until I commenced arrangements for bleeding him.

thy appearance of the crassamentun; commenced Mr. Abernethy's alterative tonic course, Pil. Hyd. gr. v. every other night, and decoction of sarsaparilla lb. i. every day.

23*d*.—The patient has had a better night than he has enjoyed for a long time; has passed only $3\frac{1}{2}$ pounds of urine, and through the 24 hours only 8 pounds in ten evacuations, it seems of a darker colour than hitherto; he cannot describe the comfortableness of his feelings; the thirst which used to torment him so, has altogether ceased; one healthy alvine evacuation daily.

24*th*. The headach and thirst again slightly felt; $8\frac{1}{4}$ pounds of urine passed in the last 24 hours at 12 evacuations; again at the patient's urgent entreaty take oz. xii. of blood, which, examined five hours after extraction, has the same diseased appearance as formerly; patient during the operation in an erect posture, no faintness; pulse before bleeding 78, after it 70, rising an hour afterward to 74, with increased strength and firmness; relief again complete.

25*th*. The patient has had a good night, disturbed only three times. Urine in the last 24 hours reduced to $7\frac{1}{2}$ pounds in eight evacuations; color and smell slightly altered, no complaints of any kind; one healthy stool of natural color and odor.

26*th*.—No change, seven pounds of urine discharged in nine evacuations, redder colored, and with an urinous odor; bowels regular; pulse 74.

27*th*.—The patient not quite so well; eight pounds of pale urine discharged in ten evacuations; the headach and depression of spirits returning; again at the patient's earnest desire take oz. xvi. of blood; no faintness during the operation; pulse before bleeding 76, after it 65, rising an hour afterwards to 70; the blood, four hours after extraction, has a distinct buffy coat, and the crassamentum is firm; the relief again complete; applied another blister over the lumbar region.

28*th*.—A most decided change for the better; the discharge of urine reduced to five pounds in seven evacuations, and the patient can now resist the inclination to discharge it; he describes himself free of all complaints except the irritation of the blister.

29*th*.—No change; a good night, disturbed only twice; urine in the last 24 hours $5\frac{1}{4}$ pounds in eight evacuations; bowels regular; pulse 78, strong and full.

30*th*.—No change since yesterday, bowels regular.

*October* 1*st*.—The patient did not sleep so well last night; had improved so much during the last ten days, that he had been persuaded to join some friends and go out to dinner yesterday evening; feels the thirst and the headach and depression of spirits returning; urine in the last 24 hours, seven pounds in nine evacuations, and again of a pale color and unnatural odor; take oz. xvi. of blood, no faintness, but after about oz. xii. had flowed, a copious perspi-

ration broke forth; pulse before bleeding 78, after it 64, rising to 70 within an hour; the blood five hours after abstraction has the most marked inflammatory appearance possible*; I never saw so marked a buffy coat, or a more firm coagulum.

2*d*.—The patient is wonderfully better, and feels his strength improving daily; slept through the night, which he has not done before for more than a year; urine during the last 24 hours $3\frac{1}{2}$ pounds, high colored, and depositing a brown sediment; on being evaporated no mucilaginous residuum.

3*d*.—The patient continues doing well: urine during the last 24 hours 4 pounds, high colored; no mucilaginous residuum, or empyreumatic odor; bowels regular.

4*th*.—The patient continues doing well, was disturbed once in the night; urine in the last 24 hours $4\frac{1}{4}$ pounds, but in no respect diabetic; the patient having been weighed on the 4th September, and again on the 19th, had lost four pounds in those

* This change in the appearance of the blood and the singular circumstance here noted, are still more strongly marked in the histories of Dr. Watt: "The patient is getting fast better, but the blood is more inflamed than at any former period of the disease. At first, the buffy coat was a mere pellicle; at present, it is not only thick, but contracted to the size of a shilling. The lower part of the crassamentum too, is much more tenacious than formerly. The most violent cases of pneumonia, or acute rheumatism, do not show the blood more sizy and morbid in its texture."—p. 35.

15 days; being weighed to-day he has recovered in the last 15 days 5 pounds; his appetite and spirits good, sleep sound, and bowels regular; pulse 74, strong and healthy.

5*th*.—The patient continues as yesterday; the urine in the last 24 hours nearly 5 pounds, but not diabetic; but the patient being uneasy at the increased quantity, at his desire oz. xii. of blood were taken; the appearance more natural than before, a very slight buffy coat and firm coagulum; the perspiration breaks out as before; no faintness; pulse before the operation 78, after it 65, rises within an hour to 70, a steady, healthy-feeling pulse; applied a third blister over the lumbar region.

6*th*.—The patient says, he feels to-day what he has not felt for many months, that his skin is soft and moist with insensible perspiration; that the tepid bath this morning gave him wonderful pleasure; thinks himself cured, says he is *another man*; urine in the last 24 hours not quite four pounds, which is less than what he has drank; one healthy alvine evacuation daily.

13*th*.—From the last memorandum to this date, no alteration but the pleasing one of strength daily improving; it was, however, curious to observe a very gradual but regular daily increase in the amount evacuated, so that on this day the admeasurement

showed that in the last 24 hours very nearly 5 pounds of urine had been discharged; this increase, and the patient's anxiety of mind about it, induced me to take away oz. xii. of blood, being the seventh bleeding, but respecting which I had now no apprehension whatever, for the patient's appetite was so good, and the action of his bowels so regular, that I had no fear of his suffering in the slightest degree. The blood had still a slight buffiness, but the crassamentum was quite natural; no faintness was felt during the operation; the pulse before bleeding was 78, fell after it to 60, and rose within an hour to 70; a fourth blister applied over the lumbar region.

20*th*.—The patient, during the past week, had been in every respect free from complaint, except a painful sore in the back from the last blister ulcerating; it was not, however, by any means so serious an issue as would have been produced by dressing the blister with savine cerate; the patient being weighed had gained two pounds in the last sixteen days; he had now strength to take morning rides for exercise, and went out in his pleasure boat every evening; in less than a fortnight he discontinued medicines, and returned to the usual duties and amusements of life, and never had any return of illness, but left India in good health when his circumstances enabled him to retire from the service. In England, where he married and had a family, he was never troubled with any return of this dis-

order. His death, for the case can be brought to its conclusion, was sudden, in a fit of apoplexy, which attacked him when in perfect health, without his ever having been heard to complain of any indisposition, and without the slightest previous symptom of pain or uneasiness having been observed by those about him.

I have endeavored, in the relation of the above case, to include, as I proceeded, the history of my feelings as well as of my proceedings. In conclusion, therefore, I find I have little to add beyond what is already written. That the cure was accomplished solely by phlebotomy; and that the local counter-irritant and discharge, kept up by so many blisters, and the alterative tonic course of mercury and sarsaparilla, were secondary, will I think be readily acknowledged. After this the most important features of the case are: First, The nervous irritability which, it seems evident, was the latent disease, and of which the diabetic discharge was only a symptom. This is what Dr. Watt has, without intending it, done something to establish: for, in speaking of a lady who had profuse hemorrhage from the urinary organs accompanying diabetes, he says, "In this instance, the cure was perhaps accomplished by the profuse evacuation from the kidneys."

The subsequent decease of Col. C. in a fit of apoplexy, goes very far in support of my theory,—

that a nervous irritability, dependant on cerebral disorder, was the root of his disease ; for I think it shows his constitutional tendency to such disorder. The next observation is the singular effect of the ammonia and lime water, which most assuredly aggravated the diabetic discharge, and yet, by increasing it, seemed to afford a temporary relief to the more distressing symptom,—the mental anxiety, and uneasiness about the head. This is a curious and important discovery, and will go far to explain how those medicines have acted in other instances, where they have been lauded as specifics ; whilst, at the same time, I consider it as throwing considerable light on the real nature of the disease itself.

The next observation is important, and ought to be kept in view in Indian practice, to show that the lancet may be as fearlessly resorted to here, as in a cold climate, when judiciously and scientifically used. The fact that a man in his fortieth year, weak and emaciated after more than a year of sickness, should not only be able to bear the loss of oz. 92 of blood in 24 days inclusive, but should be found on the 30th day to have increased seven pounds in weight, beyond what he weighed on the day previous to the first bleeding, is worthy of very serious consideration ; and yet on reflection, can the loss, even of so much blood, be considered to have been such a drain on the constitution, as the diabetic discharge would have proved, had it been left un-

disturbed? Without troubling ourselves to theorize, the history proves, that under the one the patient was wasting daily; under the other he recovered his native energies.

My last observation refers to the nosological definitions of diabetes into the two species mellitus and insipidus. "I have always thought (says Dr. Watt), that the division of diabetes into mellitus and insipidus was more fanciful than real, and more systematic than useful." I am not sorry for this having been already said, and wish to enforce it as my own opinion; the more particularly, as I hope there is no excess of affectation or false delicacy, in hinting a dislike to smacking lips over urinals: but though I agree with Dr. Watt in this, I still think the disease has different forms of appearance, dependant on its mode of accession, and these are three. The first, which is the simplest form of diabetes, is the one of which I have given an example, and where I conceive it to be an effort of nature to reduce some nervous irritability dependant on some cerebral over-excitement, disorder, or perhaps disease.

The second, I think, is dependant on pulmonary disorder or disease, commencing after catarrhal symptoms, and acting on the patient with the rapidity and appearances of what is termed galloping consumption.

The third form is where there is a marked visceral disorder or disease, and the diabetic discharge alternates with a diarrhœa.

Instances of all these are to be found in each of the different authors who have written on the subject; and I think the distinct character of the irritation, which in each separate instance preys upon the constitution, is deducible from the symptoms.

The object of drawing the reader's attention to these distinctions, is not for the purpose of puzzling him with any nicety of nosological definition; but merely to warm him, that if he find phlebotomy fail in the two latter instances, where the disease in the nature of things must very frequently be fatal, he is not therefore to neglect the only remedy in his power, in the form of that disease which, if taken in time, is certainly curable.

I have neither adequate information, nor yet leisure, to enter into particulars respecting these varieties of the disease; but, by way of conclusion, I will venture to offer, for the consideration of those who may have better opportunities of observation, first, how far the diabetic secretion, when following pulmonary diseases, may not be the effect of the circulating fluid being deprived of its full proportion of the

arterial principle from the obstruction of the air cells of the lungs. If this be the case, it follows, that the diabetic discharge is a sanatary process ; and mad as it would, *prima facie*, appear to bleed in consumption, yet the reduction of the mass of the circulating fluid, by causing a less bulk to be passed through the lungs, would occasion a larger proportion of the whole to come in contact with the vital air, and would thereby cause the reduced mass to be of a purer quality, and better adapted for the purposes of life. How far this is applicable to the general treatment of consumption, is foreign to the matter before me.

Second. Where the diabetic discharge alternates with diarrhœa, I should be inclined to suppose, that any half measures would be the worst treatment in the world. I was consulted by letter respecting a case of this nature, and my answer was, " that in my opinion blood letting was the only treatment to be depended on in diabetes ; and that when the disease was clearly developed, I should have no hesitation in giving it at least one trial ; and that in a case of anomalous character or mixed symptoms, I could only be guided by circumstances, of which it would be impossible to form any idea without seeing the patient ; but when the discharges were alternately diabetic and diarrhœtic, if I once made up my mind to try bleeding for the former, and if the first abstraction of blood were attended with benefit, I

should pursue it equally under the latter, and hope to reduce both evacuations." I heard in reply, that a part only of my suggestion had been attended to : the patient, a Soubahdar of Native Infantry, was bled three times in eleven days during a diabetic attack, and was most decidedly relieved ; so that, though extremely feeble, he was considered in a state of convalescence ; but after an interval of about a fortnight, without any indisposition but a slight cold coming on, this was followed by the diarrhœtic attack, which was treated as a common bowel complaint, and the patient died. Dissection showed an unhealthy vascularity, approaching to appearance of inflammation, along the whole intestinal canal ; and proved that this diarrhœa was not what is termed the colliquative diarrhœa, marking the termination of a hectic case, but an active inflammatory disease, in which the further abstraction of blood would, beyond doubt, have been not only safe but beneficial. Such, at least, was the candid opinion of the gentleman who treated the case ; and in stating what he thought, I can only add, that it is in consonance with my own ideas, but that I have not had opportunities to offer, in any other manner, an opinion of my own on this part of the subject.

# CASE

OF

# DISLOCATION OF THE HUMERUS.

By W. TWINING, Esq.

*Presented Jan.* 6, 1827.

THE following case of dislocation of the shoulder joint, which was restored after the bone had remained displaced three months and thirteen days, will, I trust, be satisfactory to the Medical Society; as an example of what may be reasonably expected in a stout and muscular subject, where a limb has been luxated with much violence, and remained not reduced for a great length of time.

Wm. Foss, aged 42, a robust and healthy sailor, was placed under my care, on the 25th December 1826, with a dislocation of the left shoulder joint. The head of the bone was downwards, resting on the anterior side of the inferior costa of the scapula; the hollow under the acromion was more distinct than is usually observed in recent luxations of the shoulder, as there was some wasting of the muscle from disuse and altered position. The elbow was carried out from the side, and could not be placed down against the ribs; indeed, any approach towards that position was so irksome that the man wore a cushion under the arm, to bear it out from the

side. On examination, the head of the bone was found fixed to the scapula with exceeding firmness, and the limb being capable of but limited motion, was of very little use.

On the 27th December, gradual extension was applied by the pullies, the patient being placed on an hospital couch in the sitting position, with the body somewhat inclined towards the right. The extension was made, nearly at a right angle with the body, and in a direction a little upwards. When he began to complain of pain, gr. xx. of ipecacuan, and gr. ii. of tartar emetic were given in oz. ii. of water; and on considerable nausea being evinced by frequent spitting, lb. ii. of blood was taken from a large orifice, which produced the requisite degree of general relaxation.

After the extension had been gradually and steadily increased for forty-five minutes, the head of the bone was found to have decidedly altered its position. Two crutches then were placed together, with a sheet wound round them, and carried under the axilla, so that two men could gradually raise the head of the bone, while at the same time I placed my right hand on the top of the shoulder, and pushed it back, taking hold of the wrist with my left hand to rotate the humerus. The head of the bone presently turned round the edge of the glenoid cavity, and bolted into its place, with a noise that was audible to the attendants, but it was more a grinding noise than a snap.

Some reason may be required, for my not proceeding in the usual succession of producing relaxation by bleeding and nauseating medicines, before the pullies were applied; but I was fearful, that if faintness and sickness were first excited, the patient would not permit the pullies to be applied.

The mode of raising the head of the bone appears to be eligible, after sufficient extension has been made, in cases where the limb has been long displaced; for it is my belief, that one great requisite in reducing old dislocations, (next to producing sufficient relaxation,) is to have command of abundant power, but to use it with the greatest steadiness and most merciful forbearance.

I wrote for an extract from the ship's Log-book, relative to the accident, and period of this man's dislocation; the substance of the reply is as follows:

"Wiliam Foss met with the accident at 20 minutes past 10 A. M. on the 14th September, 1826, in lat. 38 South, long. 29° 10′ East. There had been a gale, and while two men were attempting to stow the jib, a tremendous sea took away the jib-boom. Poor Austin was killed against the bows; but W. Foss was entangled in the rigging, hanging by the arm nearly an hour under the bows, frequently under water, the sea running mountains high; in fact, we all despaired to get him on board.

(Signed) G. FROUDS,

*1st Officer, Brig Francis.*"

Considering the very firm manner in which the head of the bone had been fixed to the scapula, before the extension, and the length of time since the accident, I was apprehensive of inflammation; therefore applied sixteen leeches to the shoulder on the 28th December, and thirty-two more on the 29th. Very little pain or swelling ensued; and the man is now able to use that degree of motion which can, at this early period after reduction, be prudently permitted. I believe, he will recover the power and use of his arm entirely. The force applied was considerable, but very gradual and steady; therefore it produced not any injury or excoriation of the soft parts or skin*.

* Foss returned on the Brig Francis to Liverpool, and should he not recover the use of his arm, it is probable he will apply to an hospital for aid; and any communication as to the degree of this man's recovery would be interesting to the Calcutta Medical Society. W. T.

# NOTICE OF THE BELA,

## VILWA, OR BEL.

BY BABOO RAMCOMOL SHEN.

*Presented 7 July* 1827.

THIS tree holds a high estimation in Bengal, and affords various preparations, which are used as articles of medicine or diet, with great reputed efficacy, both in health and disease.

For the following botanical specification of the plant, I am indebted to Dr. Carey.

### ÆGLE.

*Calyx* four or five toothed; *Corol* four or five petalled; *Germ* superior, 8—12 celled, cells many-seeded.

Æ. marmelos. Cor. Pl. 2. No. 143. Corr. in Act. Soc. Lin. v. 222. Bilva or Mahua. Asiat. Res. iii. p. 349.

*Beng. Bela.*

Covalum Rheed. H. Mal. iii. t. 37. Bilanus, Rumph. Amb. i. t. 81. Caavela marmelas. Willd. ii. 853.

*Teling.* Maredoo.
*Tam.* Willa marum.
*Mal.* Tangulo.

*Trunk*, pretty erect; *bark*, ash coloured; *branches* few, irregular; *thorns*, axillary, in pairs, single, or none. Flowers in the hot season; fruits ripen after the rains.

*Leaves*, ternate; *leaflets*, oblong, or broad lanceolate, attenuated to a blunt point, crenulate, differing much in size, the exterior one always largest.

*Panicles*, small, terminal, and axillary; *flowers*, large and white, all hermaphrodite.

*Calyx*, 4-5 toothed; *corol*, 4-5 petalled.

*Filaments*, about forty, short; *anthers*, linear, erect.

*Berry*, large, subspherical, smooth; *shell*, hard, 10-15 celled.

The cells contain, beside the seeds, a large quantity of tenacious, transparent gluten; it may be drawn out in threads of one or two yards long, and of an almost imperceptible fineness; *seeds*, 6-10 in each cell, oblong, compressed.

A short notice of the Vilva, Bilwa, Bel, or Bengal quince, is also to be found in the valuable work of Dr. Ainslie, (ii. 188.) as known in the south of India, Ceylon, and Java. From this it appears, that on the Malabar coast a decoction of the root of the bark is considered as a sovereign remedy in hypochon-

driasis, melancholia, and palpitation of the heart; the leaves in decoction are used in asthmatic complaints, and the fruit a little unripe is considered beneficial in diarrhœa. From the rind the Dutch in Ceylon prepare a perfume, and by the Javanese it is regarded as of a very astringent quality. The mucus round the seeds is said to be a good cement.

In Bengal the parts of the tree which are employed, are the bark of the root and stem, the leaves, and the fruit, both immature and ripe.

The bark of the root is peeled whilst fresh, and a decoction of it is made, in the proportion of two *tolas* or about an ounce to 8 *chittaks* or about a pint of water. It is boiled to one-fourth, and administered in bilious fevers.

The bark of the tree is sometimes used in fever, but rarely alone, being more usually one of those mixtures which are known as combinations of fourteen or eighteen substances, and given in remittents; when used alone, it is given in a similar decoction as the bark of the root.

The expressed juice of the leaves, diluted sometimes with a little water, is commonly given in colds and incipient fevers, when the patient complains of general dulness, pains in his limbs, and sense of fulness of stomach. The juice is slightly bitter and pungent, and induces perspiration. The young

leaves are also used in ophthalmia, and are made warm and so applied to the eyes to relieve pain and inflammation.

The unripe fruit is cut into small slices and dried, and a decoction is formed of the dry pieces, by boiling them in the same proportion as the bark. It is in this preparation that the medicinal properties of the plant are most decidedly manifested, and the decoction of the dried unripe fruit is a most valuable remedy in diarrhœa and dysentery. It is particularly serviceable in the bowel complaints of children, but is also of benefit in several stages of such diseases in adults.

The other forms in which the fruit is employed, belong rather to diet than medicine; but they deserve to be noticed as employed in such disorders.

The half ripe fruit is found serviceable in affections of the bowels, and may be used as food with advantage, after cutting it into slices and slightly roasting them.

A preserve is likewise prepared from the fruit before it is ripe, by boiling with syrup, which is also given to patients laboring under bowel complaints with benefit, when every other article of food is the cause of fresh excitement, and attended with a feeling of oppression after being taken into the stomach.

The ripe fruit is also beneficial in the same way. A sort of sherbet is prepared from it with tamarind juice, which has rather an opposite effect; but it is on that account beneficial in fevers, and inflammatory affections attended with thirst.

The glutinous matter about the seeds, is used by painters as a size and varnish.

The Bel is not the less esteemed by the Hindus, that the tree is held particularly sacred to *Mahadeva*, and is always worshipped at festivals celebrated in honour of him or his spouse, as at the Doorga Pooja and similar celebrations.

# AN ACCOUNT

OF

# THE NIPAL GINSENG.

BY N. WALLICH, M. & Ph. D.

*Presented Oct. 6, 1827.*

WHILE I was in Nipal in 1820-21, I found on the top of Sheopore, one of the highest mountains which surround the great valley near the remains of an old fortification, at an elevation of between 9 and 10,000 feet above the plains of Bengal, a plant which I had no difficulty in recognizing as the Ginseng, or a species of Panax nearly allied to it. There were a good number of individuals growing under the thick shade of oaks and rhododendrums within an area of forty or fifty feet square; but the most diligent and frequently repeated search, by myself and my assistants, convinced me, that the plant was fixed, as it were, to one circumscribed spot, nor were our subsequent endeavors to find it any where else in Nipal attended with any success. The natives of the country to whom I showed it, were totally unacquainted with it and ignorant of its virtues, real or imaginary; they had not even a name for it to give

me, although in ordinary cases they are so fertile and inventive, and so utterly to be mistrusted, in matters connected with the nomenclature of the productions of their country. The resident of the court of Katmandoo, my worthy friend the Honorable E. Gardner, at my suggestion, intimated to the Durbar, that the country possessed a plant, which was held in the highest estimation among their Chinese neighbours, and which might perhaps prove the most acceptable gift that could be sent to the Emperor, with the triennial embassy from the Rajah of Nipal. But the matter was not considered in the light of one deserving of any further inquiry; the Government being either unwilling to contribute so grand a panacea to a Court, which they look upon with feelings both of awe and envy, or disinclined to ascribe to that Court so great a degree of folly as to pay the weight in gold for an insignificant root, possessing no earthly sensible quality, and of which not even the name is known in its native country. A very advantageous consequence has resulted from this proud feeling; it is this, that our little innocent plant continues up to this day, in the undisputed and undisturbed possession of its secluded and small territory on the top of the above-mentioned mountain.

It belongs to the class called Rhizocarpic: the root is lasting, shooting forth annually at the commencement of the rainy season—one or two stems, which produce blossoms in June, and ripe berries in August; after which they die down to the ground. It is ex-

ceedingly like Panax quinquefolium, Linn. and may perhaps ultimately be received as a variety only of that famous plant; for the present, however, I will consider it as a distinct species, of which I now proceed to give the character and description.

*Panax Pseudo-ginseng*, Wall.—Tuberibus fasciculatis, foliis quaternis, foliolis peltatim quinatis, lanceolatis, caudato acuminatis, petiolatis, utrinque valde attenuatis, duplicato et acutè, nunc subinciso serratis, secus nervos costamque canopilosis, pedunculo terminali sœpissimè trifido, petiolos subæquante, floribus hermaphroditis, baccis di-trispermis.

Radix brevis, obliqua, pennam cygneam crassa, vestigiis caulium annotinis notata, subcylindrica, quandoque in tuber deorsum intumescens. Tubera tria ad quinque approximata, sæpe deficiente, fere radice connectiva arcte fasciculata, digitum crassa. Pollices duos ve tres, longa, glabra, in filum crassum radiculosum attenuata, pallidè grysea, intus luteola, succosa, odore nullo, sapore (si quis) debilissimo mucilaginoso vix aromatico. Caulis erectus, simplex, gracilis, e basi calamum scriptorium, usque ad digitum minimum crassa attenuatus, cylindricus, pedalis, bipedalis, apice subpilosus, pallidus, altero latere sæpius purpureus; raro uno plures ex singula radice. Folia ex apice caulis quaterna, verticillatim patentia, digitata. Petioli æquales, teretes, suprà profundè sulcati, bipollicares ad sexpollicares, pilis raris conspersi, basi intumescentes et subarticulati, ibique

alternantes cum foliolis imperfectis raris linearibus sessilibus vix semiunguicularibus, interdum numero reductis, vel nullis. Foliola quina, lanceolata, in acumen gracile, nunc longissimum attenuata, basi attenuato-acuta, marginibus totis profundè et acutè duplicato-serratis, quandoque subincisis et crispatulis; peltatim patentia, membranacea saturatè viridia, utrinque secus vasa obsita pilis rectis cano-hyalinis; suprà rugosulis, subtus costâ nervisque obliquis prominentibus parum venoso-reticulatis; magnitudine inæqualia: intermedium 4 ad 5 pollicares, lateralia utrinque minora extima, dimidiam vel tertiam modo partem ejus æquantia. Petioli partiales vix unguiculares, teretes, pilosuli, sulcati, basi articulati. Pedunculus terminalis (caulis apex continuata) medio vel versus basin trifidus, gracilis, teres, pilosulus, petiolis demidio brevior, fructiger eos æquans; rarissime integer. Umbella terminalis globosa, flores continens 20 ad 30 parvos, hermaphroditos. Involucrum constans setis aliquot vagis viridibus basibus radiorum filiformium semiuncialium intermixtis. Calyx adnatus, dentibus quinque parvulis erectis distantibus lanceolatis persistentibus. Petala quinque, dentibus calycinis alternantia, patula, caduca, lanceolata, acuta, bilinearia, intus mediò tineâ longitudinali subcarinata. Stamina quinque petalis alterna, iisdem paullo breviora, erectiuscula, citò decidua. Ovarium turbinatum, læve, obsoletè compressum vel triangulare, bi vel triloculare, totidemque ovulis pendulis. Styli duo vel tres persistentes subulati, paullo divergentes, intus sulcati. Stigmata obtusa, scabrida.

Bacca globosa, obsoletè triloba, vel subreniformis biloba magnitudinis pisi majoris, lævis, stylis et calyces dentibus emarcidis coronata, nitida, coccinea, carne molli pallida et albicante, bi-trilocularis. Semen solitarium in singulo loculo ovatum, compressum, dorso gibbosum, margine interiore subrecto ad angulum superiorem, i. e. apicem seminis pro ingressu funiculi umbellicalis perforato. Testa crustacea et fragilis, pallidé grysea, scabriuscula. Membrana propria tenuissima. Perispermum carnosum, semen exacte figurâ referens. Embryo minutissimus, in summa parte perispermi hærens, inversus. Radicula supera.

The plant seems to me to differ from the genuine ginseng of Chinese Tartary and North America, in the following respects. Its tubers are more numerous and fascicled. Our plant is much taller, its upper parts, chiefly the leaves, are somewhat rough from copious, gray subulate hairs; while the other is perfectly smooth, except the leaves, which are sometimes very sparingly hairy. The leaflets are not ovate or obovate, as in that species; but lanceolate, ending in a very long acumen; their base acute, not rounded; and the margins are deeply indented with sharp double serratures. The inflorescence too differs: in our plant it consists most frequently of three long peduncled umbels, the peduncles of which are either distinct or united below into one, with the flowers mostly hermaphrodite; in the Linnæan species the umbel is single, and the flowers poly-

gamous ; the berries in our species are mostly three seeded, in the other they are always two seeded.

It is highly probable, that the root possesses as little claim to a place in our Materia Medica as the real ginseng. I have in vain endeavoured to preserve the young plants, reared in the Honorable Company's Botanic Garden, from roots and seeds sent down from Nipal. Like all other Alpine productions, especially those which have a confined extent of growth, our plant is very impatient of control, and soon perishes if removed into a climate not exactly resembling its own ; it is therefore not likely that it will ever be induced to grow in Bengal.

ON

# PUBLIC HEALTH IN INDIA.

By D. BUTTER, M. D.

*Presented Feb.* 2, 1828.

## Part I.—On the Amelioration of Climate.

THE great cause of the comparative insalubrity of tropical climates is the excessive *heat* which they receive from a nearly vertical sun, and which induces, by various means, a long train of dyspeptic, adynamous, and hepatic disorders, and, finally, fevers with all their consequences; either by its own unaided action on the living system, or in conjunction with *miasm*, the powerful ally which it raises from the rapid spontaneous decomposition of dead organized substances. An inquiry, therefore, into the possibility of mitigating the destructive powers of an Indian climate requires, in the first place, a separate consideration of the circumstances which determine the abundance and activity of those two influences.

### Heat.

As the powers possessed by any body of conducting and reflecting heat are constant, and its powers of absorbing and radiating heat exactly equal, it might be expected, that the earth, if not enveloped by an

atmosphere, would lose during the night the accession of heat acquired during the day: and this undoubtedly would happen, were our globe provided with a satellite kept near it, in opposition to the sun, and sufficiently cold, massive, and capacious of caloric to act as a drain for all the heat that could be thrown from the earth's surface, at night. But as the exterior planets are too few and remote to act in this capacity*, an accumulation of heat would occur, till that temperature should be attained, at which the nightly radiation from the earth's surface would become sufficiently rapid to balance the supply of heat communicated by the sun. At *what* temperature would this equilibrium be established in any given latitude, at the equator for instance?

The ancients generally considered the equatorial regions as an impassable zone, abandoned to devouring heat; and, in more recent times, calculations have been formed to show, that the mobility and equalizing aid of the atmosphere alone render the heat of those regions supportable. But how are such con-

* "Ancient and popular prejudice," in ascribing to the moon a chilling property, may have come nearer to the truth than the theories which led modern philosophers to expect the thermometer to rise when exposed to the concentrated rays of that luminary. Being scarcely possessed of an atmosphere, it can be little heated by the sun's rays, must be greatly inferior to the earth in temperature, and will act like the mass of ice in the Florentine experiment by lowering the thermometer; though to render this effect perceptible a very powerful catoptric speculum would be required, as the proportionally greater quantity of heat reflected or radiated from the earth's surface is due, not to its superior means of *accumulating* heat, but to the greater *extent* of its atmosphere, by which a greater concentration of the sun's rays is produced.

clusions to be reconciled with the snowy mantle of Cajambe, directly under the equator, and of its gigantic neighbours Antisana and Cotopaxi? If these summits chiefly owe the heat which they actually possess to the surrounding air, they would by its total removal lose the greater part of that heat, and the ocean and plains from which they rise would cool down to the same temperature.

The atmosphere, then, is the grand reservoir of heat which maintains the existing temperature of the globe. Its general transparency and spheroidal form enable it to transmit to the earth, without reflection, absorption, or dispersion, by far the greater number of the rays which strike its surface. These rays impinge upon the earth; some of them are instantly reflected from smooth surfaces, again traverse the atmosphere, and are partly absorbed by it, partly escape into empty space, and are partly again reflected to the earth; the rest are absorbed by rough surfaces while exposed to the sun, and thrown out by them in right lines when averted from the sun, to be also absorbed, transmitted or reflected by a more or less transparent sky.

But besides these processes, in which the radiation of heat only, or its motion in right lines, at the rate of 200,000 miles in a second, is concerned, there are two others named the carrying and conduction of heat, which, though infinitely slower in their movements, are proportionally more important as means

of communicating the solar heat to the atmosphere. When by combustion, or by exposure to a powerful sun, an object on the earth's surface is greatly heated, the cooler surrounding air abstracts a portion of the heat, instantly expands, and is forced to ascend by its mobility and the pressure of the neighbouring colder and heavier air, thus *carrying* off a quantity of heat which, if allowed to flow laterally, alone might prove fatal to all animal life within its reach. The air thus heated ascends till, partly by its own increasing expansion and capacity for caloric, and partly by giving off by conduction its superior heat to the colder ambient air, it *reaches its own level* in the atmosphere. Again, if the heat evolved at the earth's surface be within certain limits, no such carrying of heat occurs, but a still slower mode of communication termed *conduction*, by which, without sensible change of place, the first warmed portion of air yields its heat to the next stratum, that to the next superior strata, and so on. Were our atmosphere at all heights of the same density as it now possesses at the level of the ocean, and were all its horizontal movements arrested, it would rise only to the height of five miles, and each perpendicular column of air would gradually acquire, by the processes above detailed, and permanently retain, the same temperature, as indicated by a thermometer, at both extremities. But the elasticity of the atmosphere, by which it expands to the distance of at least some hundreds of miles from the earth's surface, subverts this equality of temperature: the actual *quantity* of heat may be the same in

equal weights of air at both extremities; but its *intensity*, or the air's *temperature*, is rendered widely different by the INCREASED CAPACITY FOR CALORIC which the higher portions of the air have acquired in the ratio of their expansion. It is this important property,—by which equal bulks of air of different densities have their respective temperatures *differently* raised by *equal* additions of heat,—that clothes the Andes with snow under a vertical sun*; and as the diminution of temperature, in ascending from the earth's surface is in an arithmetical progression, a simple formula will indicate its amount at any given height, the latitude and temperature at the earth's surface being also given, and an allowance made for the excessive loss of heat which the thin upper stratum of the earth, and consequently the lower strata of the air, sustain by radiation in still cloudless nights, and during winter.

The first cause of the comparative coldness of any point on the globe's surface being the greater obliquity of incidence of the solar rays, by which an equal quantity of heat loses more by atmospheric absorption, and is at last diffused over a larger surface, the second therefore, is its greater elevation

* May this not be the principle employed to preserve the planets Mercury, Venus, the Earth, and Mars at nearly the same temperature? Observation shows, that the densities of their respective atmospheres increase with their relative distances from the sun; and the economy of the other planets of our system seems in other respects so dissimilar, that no negative answer to this query can fairly be drawn from irregularity of *their* atmospheres.

from the sea's level, by which it is enveloped in air, incapable of accumulating the solar heat beyond a limited temperature.

The third cause is its exposure to winds which have recently passed over regions colder than itself: hence the general coldness of north winds in the northern hemisphere*, particularly when, like the Tramontane of Italy and Bize of Avignon, they have been recently wafted over snowy mountains†; hence also the comparative coolness of all insular and maritime situations during the summer, and the constant evaporation from the sea restricting the temperature of the winds which sweep over it.

The fourth set of causes are certain processes carried on at the earth's surface, by which a rapid absorption or temporary annihilation of heat is effect-

* Their frigorific effect on living bodies is increased by their comparative dryness, their capability of dissolving water gradually increasing with their increasing warmth; hence, conversely, the humidity of south winds.

† The cooling power of these winds must be attributed to their dryness, velocity, and northern origin; for, whatever loss of heat they may have undergone by their mere ascent to those lofty regions, must be counterbalanced by their subsequent descent, increased density, and diminished capacity for caloric. Some startling facts, regarding the *winter* temperature of sandy deserts, have lately been forced on the public attention by Clapperton's travels in Africa, and Negri's embassy to Bokhārā; but is not the cold of the Bornou table land accounted for by its elevation, (14000 feet)? and the freezing of the Jaxartes, with a temperature of 10° F., in the latitude, and at the level of Bourdeaux, also accounted for by its proximity to the bleakness of Siberia, and the dryness of the Cashgar mountains? or must we believe, that desert, sandy soil acquires a similar low winter temperature with a woody country, when both are contrasted with the milder winter of an open verdant plain?

ed: I mean evaporation and the transpiration of vegetables, which is indeed but a species of regulated evaporation. The former occasions the acknowledged coolness of sea and river air: the latter frequently froze the Rhine and Tiber in ancient times, when the Hercynian* and other great forests existed, and at present keeps the temperature of North America several degrees below that of the corresponding European latitudes.† It may be added, that the same cause formerly prevented the hot west winds of Hindoostan from penetrating so far eastward into Bengal, as they are now observed to do; the constant destruction of groves for firewood and other purposes producing this effect. The cultivation and irrigation of dry soils have a refrigerant, and the draining of marshes a contrary, effect on climate.

The great African desert (Sahra صحرا) is an instance of the complete privation of the above advantages. No slanting incidence of the sun's meridian rays, no great elevation, no cool wind, no evaporation tempers the scorching heat and dryness of its sands; and the breeze, which is welcomed in milder climates, is there converted into the terrible Simoom‡, which carries instant death to those who fully inhale it.

* Inhabited by polar animals when Tacitus wrote.

† Complaints have been made of the extended culture, numerous canals, and plantations of rapidly exhaling trees reducing the mean temperature of Britain.

‡ Whether the coincidence be casual or necessary, it is certain that the Simoom and plague both visit Egypt in the spring. It is annually felt across the Mediterranean for a few days about Easter, being in Greece and Italy called the Sirocco, and in Spain the Solano.

Insatiable thirst, unconquerable lassitude, *coup de soleil*, ophthalmia, ardent fever are a few of the primary evils, with which it threatens even a temporary resident; and few indeed are those who survive a thorough seasoning to its fiery climate;—and such, though in a smaller degree, are the consequences of exposure to a tropical sun in all sandy districts freely exposed to its beams by a general absence of cool winds, wood, water, and elevations*.

## Miasm.

By the slow decomposition which organized bodies undergo in colder climates, when deprived of the vital principle, soft vegetable substances are converted into peat and mould, and animal matters are either resolved into a similar mould or into *adipocire*, or become the prey of larvæ, in none of which processes does any copious exhalation of elastic fluids occur. But in the temperate and torrid regions, putrefaction is greatly accelerated, when assisted by a moderate degree of moisture: nearly the whole mass is speedily decomposed and recombined into a variety of gases, which diffuse themselves more or less readily according to the state of the air, exciting not only an unpleasant and nauseating odour, but also occasionally a train of dangerous febrile diseases, although bearing so small a proportion to the pure air with which they are mixed, that their quantity cannot be ascertained by any eudiometrical process.

* The strong though expressive Persian proverbial abuse of the sandy provinces of Servistan is, "O God! when thou hadst created Servi, what need was there for hell?"

The conditions required for the production of miasm are, First, Complete deprivation of vitality in the vegetable substance exhaling it. Living animals are capable of producing morbiferous emanations, which cannot by any definition be distinguished from miasm; but I am not aware of the existence of any well authenticated facts, which extend the analogy to vegetables, excluding, of course, the *specifically* noxious emanations of some narcotic and poisonous plants.

Secondly.—As above stated, the concurrence of a moderate degree of heat is required.

Thirdly.—The presence of a moderate* quantity of moisture is also absolutely necessary. Hence miasm chiefly haunts the wooded deltas of great rivers†, and the moist sides and bases of mountains‡, through which the water received on their summits, either percolates in springs, or is exhaled in vapor, so as to keep up a luxuriant growth of perishable vegetables, which wither and rot with the returning heat of the sun.

* Dead organized matter may exist in a running stream, either dissolved or simply suspended, and not exhale miasm till concentrated by evaporation in shallows or insulated pools, where the animalculæ of the running stream will also die.

† It is supposed, that the dilution of sea with fresh water may hasten the putrefaction of dead organized matter contained in the former.

‡ So abundant is the moisture of the bases of the first range of Nipal hills (the Tarāī), that some people are led to believe it to be actually lower than the country nearer the Ganges: the deception is caused by the great number of the springs, and the slowness with which their water drains off in shallow rills, before they unite into larger streams.

Fourthly.—To allow of any dangerous accumulation, a certain stagnation of the air is required, unless the exhaling surface be very extensive, like the delta of the Niger, from which the Harmattan* breathes pestilence over the distant Guinea Coast; hence the growth of underwood is remarkably favorable to the accumulation of miasm, by breaking and arresting the currents of air which would otherwise sweep through the thickest forests.

Fifthly.—A low situation is more exposed than a higher to marsh poison, as this is formed at the earth's surface, and in extending upwards is more and more diluted with pure air. Thus the inhabitants of the Marenma, particularly the Campagna di Roma, have in all ages been accustomed to flock to the highest neighbouring grounds on the approach of the sickly season, and generally consider it dangerous to sleep in the lower apartments of a house, as the Romans avoid sleeping† outside the walls of their own elevated abode: a similar practice was followed

* The last three months of the year, when the inundation has subsided are its destructive seasons; Benin thus resembling the deltas of all other tropical rivers, which cause disease by their annual, not their diurnal, change of level.

† There is no difficulty in believing, that the animal system may be more susceptible of noxious influences during sleep; but it is also supposed that miasm is actually more abundant at night. This may arise from the air being less agitated at that period, both by winds and by that perpendicular change of place which continually goes on during the day when the ground is much heated. As the air is suddenly cooled at sunset, it becomes incapable of dissolving all the vapour which it took up during the day: hence the blue haze over rivers, by the Romans regarded as a visible malaria.

in Calcutta, before its improved salubrity rendered it safe to appropriate its lower apartments otherwise than as cellars and coach-houses; and it is not improbable, that a similar reason originally dictated the raising of the floors in Arracan and Ava. The *superior limit* which the yellow fever observes in its ravages, is to be attributed to another cause, the diminution of heat; and the unhealthiness of the hill forts in the Deccan arises from the great abundance of miasm, which is wafted to them by every breeze from their own sides, and from all the surrounding mountains and valleys.

Sixthly.—Continuity of surface, without the intervention of rising grounds, high walls, or trees, is favorable to the diffusion of miasm, by allowing every slight horizontal motion of the air to intermix laterally the pure and contaminated portions of it. Thick ranges of trees, by impeding this horizontal commixture when the air is calm or nearly so, and by altering the direction of light breezes, are very effectual in confining marsh effluvia.

How then are we to steer safely between the opposite dangers of heat and miasm? Dr. Ranken, in his interesting paper, from which I have borrowed the title of the present remarks, has taken the extreme view of the pernicious effects of water and vegetation, shutting almost entirely out of sight the equally injurious properties of unaided heat*: and

* Humboldt gives a sweeping preference to dry air in tropical climates, instancing Coro, Cumana, and Caraccas.

there are individuals who prefer the rank miasmatous vegetation and damp air of Bengal to the drier and purer atmosphere of the upper provinces. A middle course will be the safest. Let the cultivated lands be abundantly supplied with water from well-constructed canals and reservoirs, not liable to cause or degenerate into swamps, and let the uncultivated lands, and the sides of all roads be regularly planted in quincunx with the most umbrageous forest trees, so as to intercept completely* the sun's rays in their progress to the earth, the growth of underwood being at the same time discouraged by a regular system of draining, and by allowing the removal of all fallen branches as firewood; and the average temperature of the country will speedily fall, without any increase of jungle fevers.

On the above principles, an Indian station would combine every advantage, except those of latitude and elevation, by being situated in a well wooded, watered, drained, and cultivated country, without marsh or underwood, on the high, calcareous, perma-

* In passing under a *single* tree, on hot weather evenings, an increase of the heat is observed; because, during the day, the direct, reflected, and secondarily radiated beams of the sun have been absorbed by its trunk and boughs, which then begin to part with their excess of heat: thick forests, on the contrary, are at that time several degrees cooler than the open plain, from the cause above indicated. It is admitted, that trees prevent the escape of much radiant heat from the ground which they overshadow; but for this they doubly compensate by the liberal radiation which takes place from their leaves at night, and the abundant dew which trickles from them to cool the ground during the next day's wind. In *neglected* forests, this dew engenders miasm, by moistening accumulated strata of dead leaves, twigs, &c.

nent bank of a navigable river, all the ravines leading to which should be filled up, and, where necessary, shallow drains of masonry substituted, terminating at the river by solid rivetments. Vegetation near houses can be injurious only by harboring insects, and, where injudiciously disposed, by impeding ventilation: in all other respects it is highly advantageous; but the use of manure in such situations should be moderately limited.

## Part II.—On the Cooling of Houses.

### 1. *Subterraneous Apartments.*

The ultimate effect of the earth's exposure to the sun's rays is, that (probably from its centre) to within about 1000 feet of its surface, the earth has attained in all latitudes an invariable temperature of about 50° F*. Above this level, the heat gradually approaches to the average annual temperature of the earth at the surface, but remains steady throughout the year at all points more than 40 or 50 feet from the surface†. There the effects of the seasons begin to be felt, the temperature being high in winter and low in summer, in consequence of the slowness with which the impressions received on the surface

* Excepting the local phenomena of volcanoes, which are confined to a few sea coasts.

† Abundant springs which arise from about this depth, consequently indicate with great steadiness the mean annual temperature at the surface: thus Vaucluse, which pours forth a navigable stream, never varies one-tenth of a degree through the whole year.

affect the interior; and above this level the temperature gradually approaches to that of the surface.

But if an excavation many fathoms deep, with a narrow opening to the atmosphere, be made in the earth, the temperature of the air contained in it, and consequently the temperature of its boundaries, will approximate to the *winter* temperature of the surface, in proportion to the depth of the excavation*. For, as winter approaches, the cold dense air of the surface will displace the hotter and lighter air of the cavity, will, by contact with its walls, again become heated, and in its turn be displaced by a fresh supply of air from the surface; and this process will go on till the maximum cold of winter be attained†. After that period no change takes place in the temperature of the cavern, if sufficiently deep: the beams of the sun find no adequate admission into its interior, and the warm summer air floats above the entrance, communicating to the air of the cavity its heat only by the process of downward conduction, which is so excessively slow in fluids as to have its existence doubted.

These are the facts to be kept in view in attempting to avoid the heat of an Indian climate by subter-

* The high temperature of occupied mines is occasioned by the number of people and the lights which they use.

† Water in deep lakes undergoes a corresponding process, with the exception of its temperature at the bottom which, in consequence of the anomaly in its expansion, is always 40° F. in countries where the maximum cold of winter is below that point.

ranean architecture; and the following maxims flow from them. 1. The entrance to the souterrain must be from the top, and no side apertures to the face of a river bank, &c. must be allowed. 2. The earth covering and surrounding it should be of the lightest or most porous description, to retard the progress of the summer heat downwards. 3. If built in a mound or rampart, it should be surrounded with a thickness of earth sufficient to prevent the summer heat from reaching the cavity till the cold season commences. 4. It should be supplied with light, by day from a glazed aperture in the roof, and at night by a lamp occupying the same situation, with reflectors to throw the light down, concentrated, if required, in either case. 5. During the day the door should be opened as seldom as possible. 6. Ventilation, if necessary, must be trusted to the punkha alone, as the admission of air, even cooled by tatties, would be a direct abandonment of the advantages of subterranean buildings; and cooling by evaporation would have only a momentary effect, unless the external air were constantly admitted to replace the air saturated with damp, or unless expensive measures were taken to dry the air of the apartment continually, by exposing wide surfaces of some powerfully absorbent substance, such as concentrated sulphuric acid, unslaked lime, dried earths or coarse farinaceous powder, dry woollen clothes, &c. Such an arrangement would keep a closed room very cool during the dampest weather.

In the actual construction and management of a souterrain, several minor considerations arise, such as the exclusion of *damp.* In moist situations this could be effected only by surrounding it with covered wells, capable of being emptied during the rains, or by forming the vault in a mound of earth, natural or artificial. Light would be most advantageously admitted through two large flat glass vessels, placed the one above the other, and filled with a very dilute fresh ink, which according to Dr. Herschell's experiments intercepts a greater proportion of heating rays than any other substance; the glass may be of any shape, to be determined by the quantity and distribution of light required: and, to attain the maximum of light with the minimum of heat, the whole of the interior, ceiling, wood work, &c. should be of a pure white. The roof must be heavy, and should consist of good beams supported by piers or pillars and covered in with bricks. At a distance of two or three feet, there should be a second roof finished with mortar and white-washed in the usual manner; and the intervening space should be filled with large pieces, loosely thrown together, of the lightest charcoal. This arrangement would secure a very slow conduction of the summer heat downwards; and means might be taken to diminish the quantity of heat which even the pure white* surface

* Four-fifths of the radiant heat impinging on an unpolished white surface are absorbed by it; that is, supposing the actual thermal zero to coincide with Fahrenheit's, although we know that some hundreds of Fahrenheit's degrees must intervene, and that the absolute proportion of

would receive, by watering it during the day, and covering it with a dark, wetted, thin cloth at night, thus securing an abundant radiation, on clear nights particularly. The *doors* and *hatchways* should be double, and surrounded with an excavation two or three feet deep and wide, to be filled with straw on clear nights, and by the formation of dew to pour a stream of cold air into the souterrain, which should at the coldest time of the night be cleared of its vitiated air by pulling the punkhas when the doors are open: and many other contrivances, unnecessary to be mentioned here, would be required to perfect this part of the structure. The *walls* would perhaps be best in a circular form, to resist the pressure of the earth, or at least if straight should incline outwards, and should be parted, as well as the floor from the loose earth by a stratum of well rammed clay to exclude water. The general upper surface should be either conical or ridged, to get rid of rain water speedily, and covered with grass frequently wetted in dry weather, but not so as to soak the subjacent earth, which would thus become a better conductor of heat than is desirable. The room's *capacity* should be at least sufficient to contain air for sixteen hours, for the number of people intended to inhabit it, without any perceptible determination whether *sensible* or *eudiometric*.

heat absorbed by the white surface must greatly exceed four-fifths. Gilding would be an effectual, and not extremely expensive mode of preserving the roof from heat, as it would absorb less heat by seven-eighths than the white surface: covering with green turf would also be preferable to the white surface, but for its admitting rain and concealing the leak.

2. Houses with double walls, doors, and roofs should be constructed with a strict adherence to the above rules. The spaces included between the walls and roofs respectively should be as wide as possible, and either filled up with light charcoal in large fragments, which would make the building *warm* in winter, or accurately shut up by double doors during the day, and opened to the air in cool summer nights, which arrangement would make the house *colder* in winter: tents are constructed on a different principle, as owing to the thinness of their substance, the air included between the *flyes* soon acquires the temperature of the outer *fly*, which is hotter than the external air; and the included space is therefore very properly left accessible to the latter. Pure white, especially the polished white of the Madras cement, is the best color both for the insides and outsides of tents and houses in hot climates, as more light is thus obtained with less admission of radiant heat, the colored walls *absorbing* much light, and requiring, therefore, the opening of more doors than the white, which *reflect* nearly the whole of the light admitted. I cannot agree with Dr. Ranken, in condemning the practice of "shutting up the house," so as to exclude the external air, and admit just so much light as is absolutely necessary, which in damp, *clear* weather is the only way to keep it cool, and even in moderately hot, dry weather saves all the trouble of a *tatty* without any counterbalancing inconvenience, when the number of inhabitants bears a small proportion to the size of the rooms. All

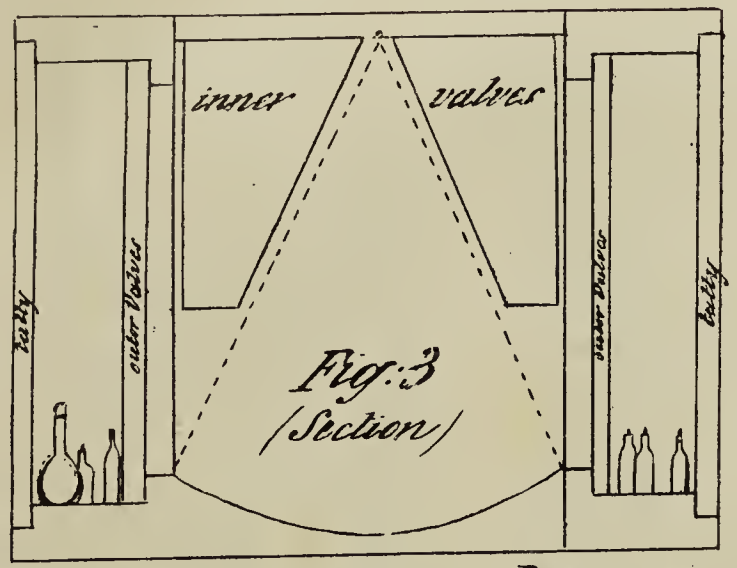
the apartments and verandas should be provided with apertures in the roof, to be kept open at all times when the heat of the external air is inferior to that of the upper parts of the rooms. Open verandas should be made as wide as possible, their roofs sheltering the whole height of the central rooms, and coming down to the level of the tops of the doors.

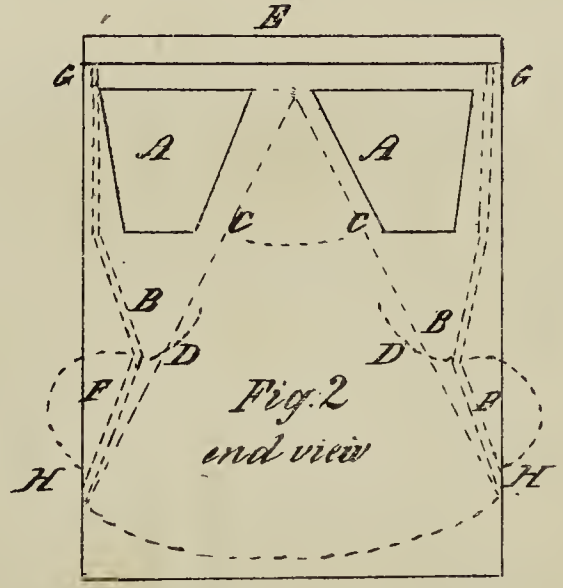
3. Ventilation is employed, in temperate climates, to remove the air contaminated by the respiration and transpiration of living beings, which is effected by different modes of opening windows, and by oblique perforations through walls, and by many other contrivances too well known and simple to require notice, the object in this case being merely to obtain a slow circulation of air, with scarcely any sensible motion. But in hot climates, ventilation is carried much farther, so as to cause a very perceptible agitation of the air, for the purpose of continually removing the miniature atmosphere, loaded with heat and watery vapour, which accumulates round the living body when exposed to air of a temperature approaching to its own,—and thus to produce an actual cooling effect on living animals, and all objects exposing a humid surface.

Were atmospheric air equally mobile with hydrogen gas, there would seldom be any necessity for the employment of artificial afflation, as the same vertical currents of the air would then be occasioned by

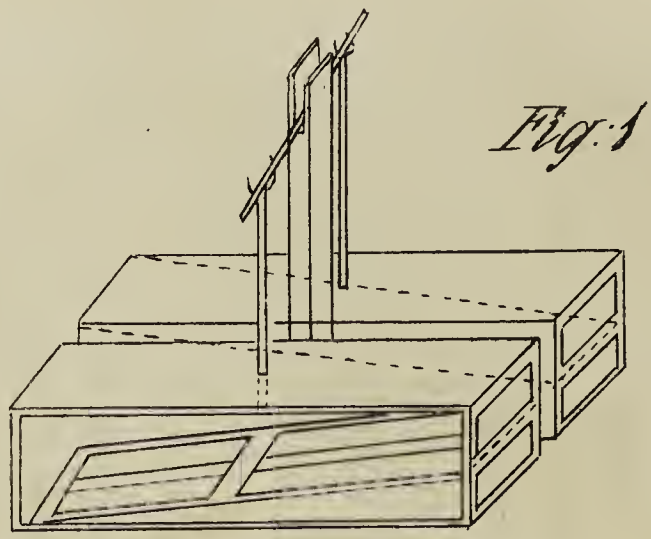
differences of density equal to only one-third of those now required, and the heated envelop would, as soon as formed, be displaced by drier, colder, and denser air, in all cases where the temperature of the latter should be under 100° F. and itself not *saturated* with moisture. But owing to the comparative sluggishness or *viscidity* of air, its inertia is not overcome by differences of density, occasioned by a difference of temperature amounting to *some degrees* of Fahrenheit's scale; so that, to constitutions which generate more heat than is accordant with the climate, even at those lower temperatures afflation is highly agreeable. At 100° F. and in a perfectly damp atmosphere, there occurs an absolute stagnation of the air surrounding the living body: but as air of that temperature is never naturally saturated with moisture, afflation still affords relief by applying air capable of dissolving the animal perspiration, and thus occasioning an absorption of heat from the body. The sensations communicated by an atmosphere at 100° F. and saturated with moisture may be imagined from a perusal of Mr. Holwell's Narrative of his Sufferings in the Black Hole.

Afflation is in general better performed by the PUNK'HA than by any other contrivance. But as it may sometimes be desirable, not only to agitate the air of an apartment, but also to change it continually for fresh air; various pneumatic machines have been constructed for the purpose of forcing air through

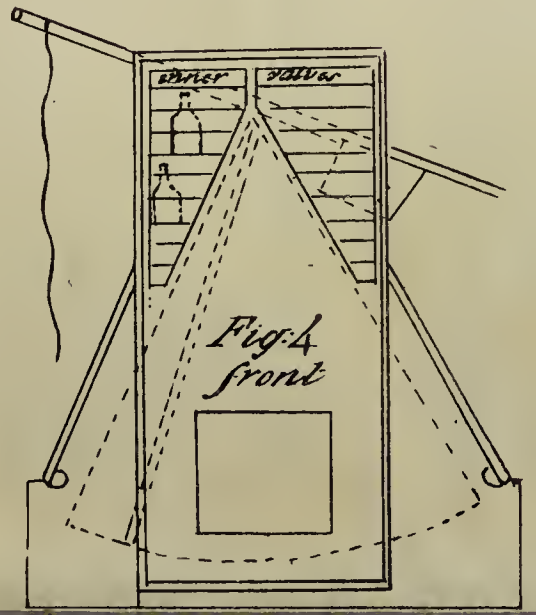


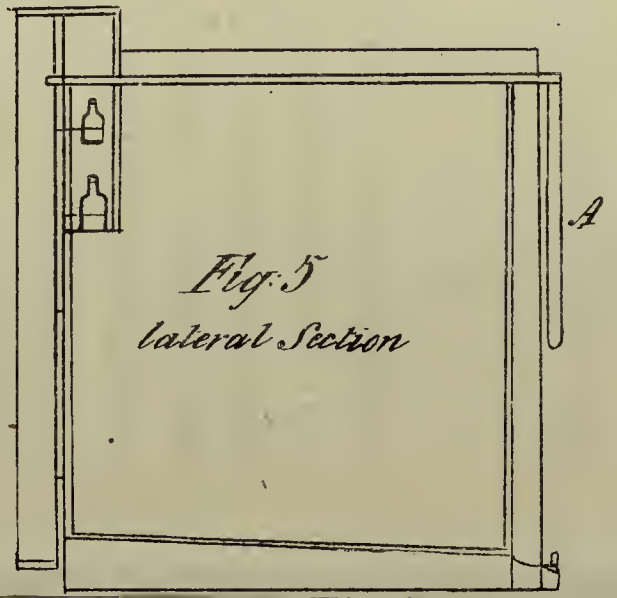



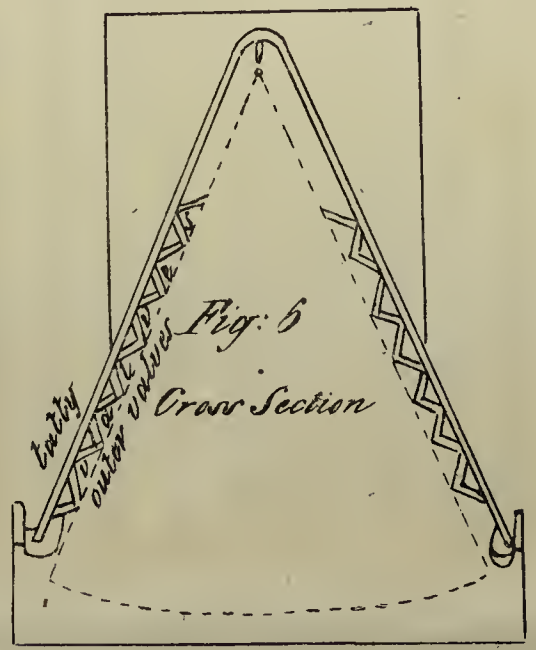

MODIFICATIONS of M.R JEFFREYS REFRIGERATOR

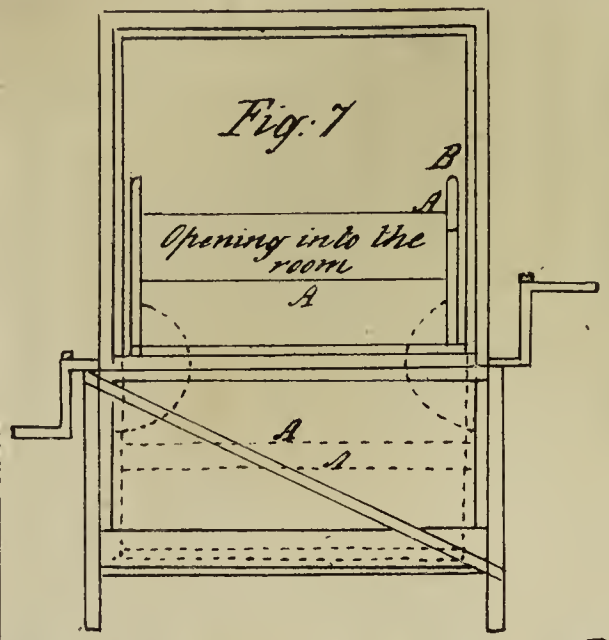


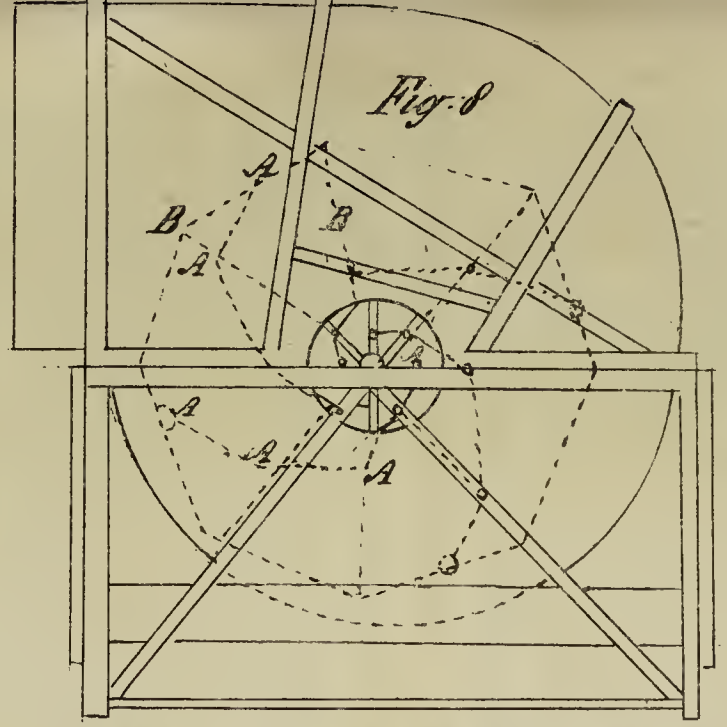

D.R HALES VENTILATOR

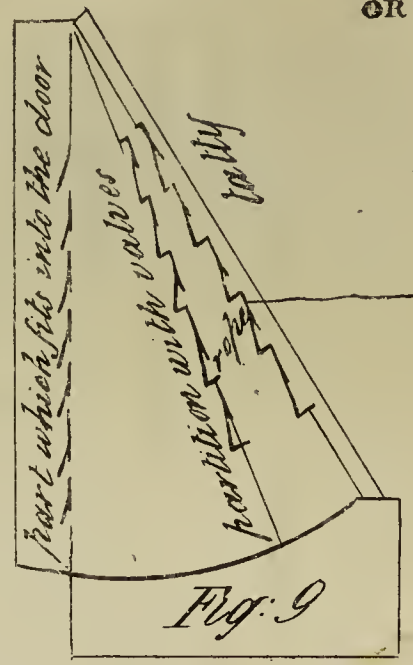




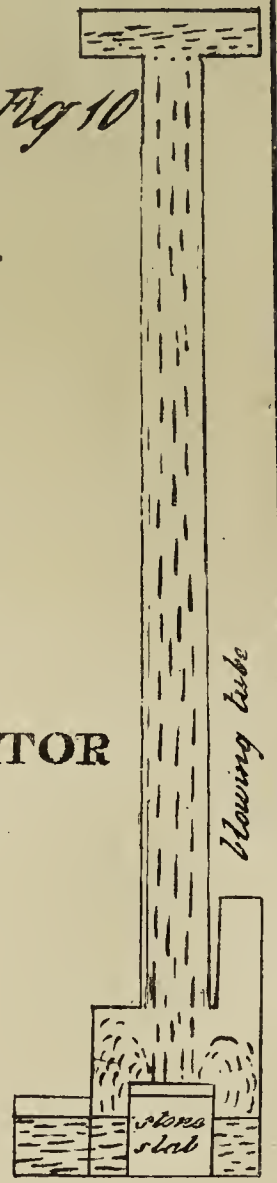




# MODIFICATIONS of Dr RANKENS THERMANTIDOTE

*The wings are made of cloth stretched over the rods A.A.A &c.a the ends of which pointsin hyperbolic spirals are fixed into the radii BB*

## DEMI-REFRIGERATOR

SOUFFLET D'EAU OR TROMPE



the room to be ventilated: they are made to act either by single compression or by centrifugal impetus.

The earliest VENTILATOR working by COMPRESSION, is that of Dr. Hale's (1741) represented in the accompanying Fig. 1. Two oblong boxes are each divided in the middle by a thin wooden partition, moveable on hinges at one, and by a lever at the other end, and almost touching the sides of the boxes, but prevented from so doing by a strong wire bent into an arc of which the hinge forms the centre: a notch cut in the partition slightly touches this wire and prevents any lateral stroke which might occur from imperfection in the hinges. Above and below the hinges are valves, which by tubes fitted to them enable the operator either to throw air into a room or extract its air, at pleasure. The blowing machines used in England for blast furnaces resemble this instrument; but they are generally made cylindrical, and their partitions or pistons have no hinges, and are closely fitted by packing, and moved by water or steam.

Similar to it also in principle is Mr. Jeffrey's Refrigerator. Fig 2, is an end view of one constructed by a military gentleman in the upper provinces, and differing in materials chiefly from that of Mr. Jeffrey's, which is of wood throughout. The valves AA open alternately, and the valves BB shut when the swinging partition C (a frame of wood covered

with cloth) is pulled towards them by a rope fastened, either to the partition itself at D, or to a prolongation of its frame at E. The sides of the instrument are made to fold down by hinges at FF, for the convenience of cleaning its inside. The air is thrown into the room through the valves AA, and tatties are applied to the sides from G to H. As this drawing is made from a small model, it may differ slightly from the apparatus itself, which is constructed of masonry, and is said to answer extremely well; an equally favorable account is given of the same gentleman's demi-refrigerator, sketched in Fig. 9.

Fig. 3, represents another modification of the same machine by a gentleman in the civil service. It differs from the last, in the greater dimensions given to the spaces intervening between the side valves and *tatties*, for the convenience of cooling water, &c. and in the valves being subdivided into horizontal portions, overlapping each other like venetians, and formed of flannel so as to make no noise. The partition also is loaded at the bottom to give it greater impetus, and is moved by a long pendulum attached to the end of its axes outside the machine*, and also loaded at its lower extremity. The lower portion of the *tatty* is made to fold up, and a corresponding number of the horizontal bars, on which the valves are hung, made removable at pleasure.

* Mr. Jeffreys's refrigerator is moved by a horizontal lever, fixed by its centre to the outer end of the axis.

In attempting any improvement on the above ingenious adaptation of Dr. Hales's ventilator, it would seem advisable to advert to the following rules:

1. If possible, the whole of the blast of air sent into the room should come immediately from the *tatty*; in other words, the air should not be allowed to remain, during more than one swing of the partition, within the refrigerator: in the first place, because the walls of the refrigerator being at a comparatively high temperature, the air becomes heated by long contact with them; therefore, the partition at the extreme point of oscillation should come as nearly as possible into apposition with the *sloped* side of the refrigerator, so as to drive out the air almost entirely:—in the second place, because the air, being elastic, expands when the punkha recedes from it, and thereby supersedes the necessity of a supply of air from without, exactly in proportion to the extent of the space not swept over by the partition; therefore, this space should be contracted to the narrowest limits, instead of being *extended* as in Fig. 3.

2. There being no advantage, except the very slight cooling effect from the air's altered capacity for caloric, and rather a disadvantage from the concentrated draught of air so formed, in the air being forced with velocity though small apertures, the valvular openings into the room should be as large, and

the valves as moveable, as they can be made consistently with close fitting. By this means the resistance to the swing of the partition is reduced to a trifle: it will therefore be more easily pulled, and there will be less waste of power by air escaping to the opposite side, round the edges of the partition. A maximum size of the *tatties* and side valves is also desirable.

3. The partition should be made as large and light as can be consistent with perfect inflexibility: and its centre of oscillation should be raised as much as can be done, consistently with the partition retaining a sufficient momentum with little friction, by fixing a thin stone slab, or any similar weight under its axis at the side next the door; and, at the same distance from the centre of suspension, a similar weight should be attached to the lever, with its centre of gravity 20° or 30° distant from the plane of the partition, to make the latter vibrate quickly and with a considerable inclination to one side; so that a full swing of 60° can be produced by a man pulling vertically at the rope, which as well as the external weight can be made adjustable to any distance from the centre, as in Fig. 4. If the pendulum handle be preferred, its weight should be accumulated, not at its inferior extremity, but at a *moderate* distance from the axis, to be determined by actual trial, as at A, Fig. 5.

4. As minor points it may be observed, that a few bottles can be cooled by resting them on iron rings,

and studs fixed behind the inner valves; that the refrigerator can be made to supply itself with water by forcing pumps connected with the lever, or that the water should be allowed to run from troughs or earthen vessels supported on a stage over the refrigerator, which would thus be screened from the sun; that the inverted arch swept over by the partition should be sloped downwards from the door to permit the escape of the water into a proper receptacle, and that the *tatties* should rest in sloped channels for the same purpose; that the rectangular portion which fits into the door should be well protected from external heat by a thick covering of straw, &c. kept wet; that a portion of the door under the inner valves should be moveable, for giving admission into the refrigerator to clean it; and that the right and left valves of the space above the axis must be separated by an air tight piece of cloth.

The CENTRIFUGAL VENTILATOR was introduced into Britain about 1710, by the patriotic Fletcher of Saltoun, for agricultural purposes, to which and to cotton cleaning it has been chiefly confined; although, I recollect to have seen in 1815, one of Sadler's show balloons inflated by a small machine of this description*.

Its disadvantages, when compared with the valvular instrument just described are, the inconveni-

* There is also an hydraulic centrifugal machine, which raises water by the aid of atmospheric pressure.

ent manner in which the power is applied, and the waste of power which is occasioned by the necessity of confining the air, by a barrier almost perpendicular to its centrifugal direction, when the machine is intended for throwing air *into* a room. When employed for *extracting* air, this circumferential barrier must be removed, one of the side apertures shut up, and the other enlarged and connected with the room to be ventilated; and the apparatus will then probably become much more efficient than even the valvular one of Dr. Hale's; although the great attention which he paid to the subject makes it desirable to ascertain this point by experiment,—the only mode in which a question, theoretically demanding so many allowances, can be satisfactorily settled.

In endeavoring to secure every advantage to its action as an inflating engine, the first consideration is the form of its axle and wings, and the number of the latter. Could the friction of the air be avoided, and the materials of the machine combine infinite thinness with perfect strength, and the whole be moveable with extreme velocity, there would be an advantage in having the axle very thin, and wings very numerous, and bent into very oblique, hyperbolical spirals, with their weight concentrated towards their peripheral extremities. But in practice, and taking into view the air's friction, the number of the wings should not exceed four (or eight in a very large machine); and the section of each, across the axis,

should be an hyperbola bent into a spiral of *moderate* obliquity.

The next point to be considered is the form of the case containing the wings. Laterally, and through one quadrant of its circumference in a four-winged machine, the edges of the wings should come as near it as possible without actual friction ; and the other three quarters should be spirally erected, to make room for the gradually increasing volume of air thrown out by the wings, the whole of which air will, by the lateral communication of motion, be carried out of the engine, if no insuperable obstacle be presented. Dr. Ranken has avoided one of the faults of the common fanners, in making the planes of his wings pass each to one side of the axis, but has made no provision for the accumulating pressure of air towards the upper part of the periphery.

It is hardly necessary to remark, that any attempt at augmenting the circumferential velocity of the wings should be directed more to the increase of their collective diameter, than to the rapidity of their revolution. Straps, pinions, &c. cause an enormous waste of power by friction, and should never be employed unless it be absolutely necessary to limit the diameter of the engine.

The whole apparatus may be made (except the iron axle of wood) of double cloth painted and stretched on thin pieces of wood properly disposed to ensure

inflexibility, and supported by a few stout timbers. The mode of combining evaporation with its ventilating powers shall be discussed hereafter.

Never having examined the building, mentioned by Dr. Ranken as subjected to an experiment for ventilating it, by causing the air with which it is supplied to pass through a *tunnel*, I am unable to ascertain satisfactorily the sources of its imperfection. I may, however, state the current report, which describes it as a passage commencing at the top of a high tower, through it led down into the ground, there horizontally to the foundation of the building, and into it by another perpendicular turn. If means were taken, by adapting the required machinery to the top of the tower, to produce a current of air through the tunnel, the room supplied with this air would, at the commencement of the hot winds, be cooled for a few days or weeks, in proportion to the length and deep situation of the under ground tunnel: but this advantage would be only temporary, as the sides of the passage would very soon acquire the temperature of the air rushing through it. If combined with *tatties*, indeed, the tower might be useful in a confined neighbourhood; but the subterraneous tunnel appears unnecessary: I have been told that a house at Fyzabad furnished with four towers in this manner, is kept very cool by means of *tatties* intercepting the wind, which blows through one or more of them. One objection to these schemes for procuring air from a height is, the *permanent* diminution of capacity for

caloric, and the consequent augmentation of temperature which the air suffers, in its descent.

Dr. Ranken alludes to the possibility of causing a draught through a building in calm weather, by taking advantage of the solar heat. I do not see how this can be done, except by fastening a steam-boat tunnel with stays, to a corresponding aperture in the roof of a house. The tunnel should be of the thinnest sheet iron, painted a dull black both outside and inside and as wide and high as possible. The sun's rays will be rapidly absorbed by the metal, both surfaces of which will soon acquire nearly the same high temperature, and will communicate part of their heat by conduction to the air: an ascending current of this heated fluid will envelop the iron, and will, by the lateral communication of motion, drag a large quantity of cooler air along with it; and the whole cavity of the chimney will be occupied by an ascending current, which will ventilate the apartment very effectually, and may be combined with *tatties* to the doors in dry weather. Advantage might be taken of a fire in an upper cook-room to ventilate a lower apartment, by making an aperture in the ceiling of the latter to communicate with the stove in the former.

4. Cooling by expansion, liquefaction, and evaporation.

In these three processes an absorption or *local* annihilation of heat is effected, as we may feel in the

*thermometric* coldness of the blast from an air-gun, of the hold of a ship laden with saltpetre when small quantities of water have access to it, and of damp clothing in dry weather. Expense is the only objection to the two former modes of cooling the air of houses, as they would be equally available in all weathers dry or moist ; and the cooling power of expansion may be judged of by the common blowing engines in England, which sink the air's temperature to 38° F. from 60° or 70°, or the Chemnitz fountain, which, compressing a quantity of air with the weight of eight atmospheres, allows it to escape in the form of a miniature snow storm ; although it must be admitted that evaporation *hastens* the cooling in both instances, the condensed and heated air rapidly absorbing the water with which it is in contact in the regulating cistern and subterraneous air vault, and thereby parting more *quickly* with its heat. I am surprised to find, that Dr. Ranken complains of his thermantidote causing a rise of temperature by the compression of the air ; as the air in resuming its former dimensions attains the temperature which it possessed before compression, *minus* the quantity of heat which it had given off to the parts of the engine touching it at the moment of condensation ; so that it issues forth actually cooler than before, from the effect of compression alone : the true cause of the rise of temperature alluded to is, probably, the heated state of the upper part of the engine, from exposure to the sun and air.

Evaporation, then, is the only process available for cooling air on a large scale, though sometimes capable of being slightly reinforced by expansion, as in the form of blowing engines frequently used in the iron works of continental Europe, under the name of *soufflet d'eau* or *trompe*, and which is constructed on the following principle. When a stream of water is poured from a height, the accelerating power of gravity speedily separates the first liberated portions by great distances from the last, so that the continuous stream is divided into drops gradually distancing those which immediately follow them, till, by the increasing resistance of the air, their descent becomes equal in equal times or they attain their terminal velocity. In falling, the stream is dilated into a cone, by the irregularity of the surface which the drops occasionally present to the atmosphere, and the air included in this cone acquires the vertical motion of the water, falls to the ground with it, and instantly spreads in all directions, as every one must have remarked who has stood at the foot of a waterfall, or witnessed a squall at sea caused by the sudden precipitation of a cloud.

It is obvious, that by confining such a stream in a vertical pipe, and forming a proper receptacle at its bottom, a powerful and manageable blast may be obtained; and Fig. 10, will give an idea of such an arrangement. A common straight chimney, if built of materials not liable to injury from the water,

might be converted into a *soufflet*, the top being supplanted by a reservoir pierced with numerous holes, and the outside of the chimney itself perforated, from the top to within two or three feet from the bottom, with temporary apertures for the admission of air. But it would be better to construct it of boards, double, with a space between the outer and inner pipe to keep out radiant heat. A forcing pump would be required to supply it with water, and care should be taken not to make the diameter of the tube too large for the supply of water. Where that can be procured from a running stream, as in the mountainous mining districts, the sectional area of the pipe is not made more than double that of the stream when moving very slowly; but in using a a forcing pump, it would be necessary to adopt this rule with some latitude, especially as theory does not warrant the limitation: a square foot of horizontal area, well supplied with water, would suffice to cool a large house, if the water were allowed to fall from a height of twenty feet. There are limits to the *expansive* powers of the blast; for if an attempt be made to increase them, by contracting the outlet from the air vessel, the air will escape at the lower side apertures of the pipe.

The common *khuskhus tatty* furnishes the best evaporating surface, when evenly made, and of a thickness proportional to the force of the air impelled through it. I have tried light bamboo frames

with the grass merely scattered upon one of them, and then fastened down by tying the other over it at several points, but found that the grass accumulated into *festoons* by the weight of the water, and that its loose ends threw water into the room. I cannot see any advantage in Dr. Ranken's proposal to use iron wire instead of vegetable fibres: no painting would save it from rust and make it economical. A thin *tatty* profusely watered will cool the strongest hot wind: by suspending over it a large trough perforated with a row of holes, and quills inserted into them, I have kept a *tatty* covered with a sheet of running water, and, by receiving it again in a split bamboo and earthen vessel, made the consumption of water very small. But as, in this arrangement, it is necessary for the person who attends it to be seated on a stage, level with the trough, and to raise the water with a rope, and as the quills frequently get obstructed even when the water is poured through cloth, I found it more convenient to use a small square tinned iron box pierced at the bottom of one side with a line of holes, and attached to a stick by which it could be raised to any part of the *tatty*; thus avoiding the sprinkling of water into the room and injury to the *tatty*, which are occasioned by the common mode of dashing the water against it. These minutiæ are trifles on paper, but useful in practice.

All the ventilating machines just described, can also have their action combined with evaporation,

excepting the simple *punk,ha*, which I can hardly conceive to be capable of such complication, although attempted by Mr. Jeffreys, as the evaporation when at all useful would effectually prevent the water's rising by capillary attraction from a trough fixed along the lower edge; and any other mode of keeping it wet in a dry air is not very obvious: to which objections it may be added, that the air of the room would speedily become saturated with moisture, and then rise to its previous temperature, unless some expensive means were used for absorbing the dissolved moisture, as mentioned under the head of subterraneous building.

In affixing *tatties* to these machines, it becomes a question, whether the evaporation should take place between the ventilating power, and the room to be cooled, or on the outside of the former. In deciding it, the condensation of the air, and its augmented temperature and susceptibility of combination with water and of refrigeration, may be neglected, as that condensation with its consequences occurs twice; in the first place, from the pressure of the atmosphere forcing the air into the engine, and secondly, from the pressure of the ventilating power, so that its advantages are equally secured by either arrangement. But in other respects they differ: the *external tatty* is more convenient, as it is more accessible from without, and removes the wet further from the room; but it is inferior to the *internal* in this respect, that the case of the engine itself, being exposed to

the atmosphere, absorbs much heat, part of which it communicates to the air contained in it and recently cooled by its passage through the *tatty*. The only way to remedy this imperfection of the external mode of fixing will be, either to keep the whole of the machine outside and inside perfectly wet, or to clothe it with bad conductors of heat, such as straw, tow, coarse cloth, &c.

In tunnels of all kinds it would obviously be preferable to place the *tatties* close to the room to be cooled. In the valvular engines, the *tatties* are fixed in the situations indicated in the figures; and Dr. Ranken places his on the outside of the external apertures, (which are by far too wide): perhaps a large trough filled with water, receiving into it the lower part of the machine, so that the peripheral edges of the wings might succcessively dip into, and throw about the water might be an effectual, though somewhat noisy arrangement; and the water might be prevented from entering the room by thin screens, properly disposed in the opening towards it; or a forcing pump to supply a thin *tatty* placed between the room, and which might be connected with the latter. When an extra effect is required, two or even four men could be applied to the centrifugal engine, by giving it a handle at each end of the axis.

I shall not extend this paper by commenting on Dr. Ranken's suggestions on the subject of *dress*,

further than by expressing my preference of a thick light head dress like the turban. All the heat that can oppress the head on exposure to the sun comes from without; for when subjected to an increased temperature, (in particular *gradually* increased heat like that of the seasons,) the animal economy displays an accommodating power, by which its internal production of heat is proportionally diminished*. Schemes for letting out the "central heat," by double hats fitted with port-holes, remind one of the sage who went thinly clad in winter to let in the ambient warmth, and thickly in summer to keep it out.

* See Edwards De L'Influence des Agens Physiques sur la Vie.—Paris 1824.

# USE

OF

# BELLADONNA IN HYDROPHOBIA.

By T. E. BAKER, Esq.

*Presented Feb. 2, 1828.*

THE Belladonna having been used in the following case of Hydrophobia, it may probably be found of sufficient interest to communicate to the Medical Society. The patient was attended during his illness by Mr. Leese, and myself.

December 6th, 1827.—A servant (a dog-keeper) of Lieutenant Mellish, of the 10th Light Cavalry, was bitten about a month since, by a small dog supposed to be mad, on the inside of the wrist of the left hand, where there is a small cicatrix; he killed the animal, but, with the usual apathy of the natives, did not apply to have the bitten part cut out, nor use any measures to prevent absorption; he remained perfectly well until last night, when he felt pain extending from the cicatrix up the arm and shoulder, and in the left side of the neck. On endeavouring to drink this morning, he found it impossible, and the sight of water distressed him.

1. P. M.—Complains much of the pain in the left arm and shoulder, is perfectly sensible, and says, he knows he must die, but is desirous of taking any medicine we recommend; says he feels his head giddy, like a man who is drunk, the least breath of air blowing on him makes him shudder; is thirsty; being requested to take some warm tea, he made the attempt, but on raising the vessel to his lips, thrust it away with horror; a second attempt was equally ineffectual: bowels open; pulse 88; heat natural; tongue rather dry, and reddish, from betel.

*R.* Ext. Belladonnæ gr. iv. statim sumendus.

3. P. M.—His eyes have a wild staring look; pulse 105; skin warmer, and moist. A cloth moistened with water was put into his mouth, but when he attempted to swallow, the muscles of the neck and throat became convulsed, with apparent sense of suffocation. I sent him some oranges and sweet limes, which he thought he should like, but he said he could not swallow the juice.

6. P. M.—No material change; agitation rather increased; pulse 92, and firmer, more of a wiry feel; tongue perfectly dry; venesection was strongly recommended to him, but he, and also his friends objected to it. No motion, nor has he passed urine since the morning.

*R.* Ext. Belladonnæ, gr. iv.
Submur. Hydrargyri gr. vi. M. statim sumend.

7th.—7. A. M. Was delirious during the night, but is perfectly sensible this morning, though his countenance is more anxious and wild, and he answers quicker, and appears alarmed. On putting out his hand, the exposure to the air threw him into great agitation. No stool; pulse 100, but softer than last night; tongue much furred; passed a small quantity, about six ounces, of very turbid urine this morning.

*R.* Ext. Belladonnæ gr. v.
Submur. Hydrarg. gr. x. s. sumend.

10. A. M.—Much the same: on being strongly urged to be bled, he at first consented, but when we prepared to bleed him he and his friends again objected, though he said he would be bled the following morning, if he was not better; he cannot take any liquid, even to speak of water he said was painful, and distressing to him; still complains of pain in the arm, neck, and shoulder, but does not feel any giddiness in the head; tongue is dry, and pulse 92.

*Rep.* Belladonnæ et Submur. Hydrarg. ut antea.

2. P. M.—No alteration.

*Rep.* Belladonnæ et Submur. Hydrarg. and if no motion an hour hence, to take oz. iss. of Ol. Ricini.

5. P. M.—Appears much worse; though he was desirous of taking the oil, he could not swallow it is now quite delirious, eyes appear wild, and prominent, and pupils dilated; is restless and very much

alarmed, but remains quiet for a short time when I speak to him. I gave him the Belladonna and calomel as before, but he was not able to swallow it, and spit it out of his mouth.

7. P.M. Appears still worse, his change of position is incessant, throwing off, and putting on his clothes with rapidity; jumped on his knees upon the charpoy, bending his head and trunk forward repeatedly; pulse scarcely perceptible, and could not be accurately numbered, but was between 80 and 90; attempted to give him ten grains of the Belladonna, he said he would take it, but on its being offered, seized it, and threw it on the ground, and no farther attempt was made to give it.

8. 7. A. M.—Was raving during the night, at 11 o'clock he ran outside of the compound, and it was two or three hours before he was brought in again; is now cold, and quite insensible; appears to have thrown up some of the Belladonna, a thick frothy saliva comes from the mouth, and he makes rather a low moaning noise; has no pulse, and the eyes are glassy, dry, and fixed; he appears quite exhausted, and remains quiet in his cot: he continued in this state till about noon, when he died.

It appears from this case, that Belladonna in the quantity here given was not of the least use: for the man took 23 grains in about 26 hours, without any apparent benefit; it was well mixed with a small

quantity of jelly, and given in our presence, the man was desirous of taking it, as he said he had great confidence in our medicine.

I think it doubtful whether a much larger quantity of Belladonna would have any effect in this disorder; and should I unfortunately meet with another case, I shall commence with ten grains of the extract, and repeat it in larger quantities every two or three hours, if it do not produce any decided effects. In some respects there appears to be a similarity between hydrophobia and tetanus; in the former 180 grains of opium have been given in the space of 15 hours, without any good effect, (Medical Records and Researches, Art. viii. p. 117,) and in the latter disorder Dr. Moseley informs us, (Tropical Diseases, p. 503.) that a drachm of opium has been given every two or three hours without procuring sleep, and without the diminution of any symptom; and that he never found any use from a large quantity of opium, where a small quantity had not first produced some good effect. I think it exceedingly probable, that this will prove to be the case with Belladonna in hydrophobia, and that it may be given in very large doses without producing any decided effect.

The Belladonna I used was given to me by the late Mr. Cavell, (Surgeon to the Governor General,) who was very sanguine as to its efficacy in this formidable disease, and I told him, I should give it a trial in the first case I met with. I commenced with

the dose he recommended, but I think it much too small. It appears by Brodie's experiments, (Orfila on Poisons, ii. p. 197,) that twenty grains of the extract were given to a cat, and that though it retained about two-thirds of this quantity, in five hours it was perfectly recovered; and that though the pupils were dilated and the animal appeared intoxicated it still preserved its sensibility: by another experiment, four drachms of the extract were given to a dog at half past one, and he did not die till nine o'clock the following evening.

# CASE

OF

# DISLOCATION

OF

# THE OSSA INNOMINATA.

By T. E. BAKER, Esq.

*Presented Feb. 2. 1828.*

THE enclosed case being of an unusual nature, I forward it for your perusal, and should you think it of sufficient interest, will thank you to lay it before the Medical Society. The case is drawn up from notes I made during the illness of the patient, who was attended by Mr. Leese and myself; he also assisted me at the post mortem examination, (in the presence of several other surgeons*,) and in writing down the appearances on dissection.

On the morning of the 17th December, Lieutenant S. of Light Cavalry, a muscular man, about 36 years of age, met with the following accident.

While on parade, his horse stumbled, and fell; Lieutenant S. was thrown forward over the horse's

* Messrs. Langstaff, Campbell, Robinson, Scott, Lee, and Spencer.

head, and was on his knees and hands, when the horse in recovering his fall, again fell, struck him on the perineum with his head, and came with the whole weight of his body upon the left hip; to use his own words "the horse appeared to drive him into the ground, he heard the bones make a noise like the rattling of a bag of pebbles, and he thought his bowels were driven out in front, he found he could not stand, and when being placed into the *dooly*, the bones made a snap, and gave him great pain."

He arrived at his house in a quarter of an hour, and was placed on his bed; the position of the limb was natural in every respect, and I moved it in various directions without giving him any pain, or hearing any crepitus. I now turned him over very gently, and when on the right side, I perceived a slight projection at the posterior, and superior spine of the left ilium; but when he had completely turned round on his face, the projection was not perceptible, nor was there any pain on pressing the part, nor any appearance of fracture, and the position of the limb was quite natural. I again turned him on his right side, and when in that position, I pressed my right hand on the hip joint, and with my left bent the thigh towards the abdomen; in doing this, the bones of the pelvis made a harsh grating noise, unlike any usual crepitus, and it appeared to me, as if the pelvis were completely divided; the motion gave him great pain, and he requested me not to repeat it. I now turned him over very gently on his back, in which

position he was easy, excepting a slight pain at the sacro-iliac symphysis ; the limb remained in the natural position, and was exactly the same length as the other.

It appeared to me a marked case of dislocation of the ilium from the sacrum, but such an occurrence being very unusual, from a similar cause, I requested the attendance of Messrs. Campbell, Leese, and Spencer. From my description, and observing the position of the limb, and the ease with which it was moved, they thought the injury must be of the nature I supposed; and did not think it necessary to make any further examination, as it must be attended with great pain.

At 11 A. M. he was bled to about 24 ounces, when he nearly fainted; his bowels had been opened early in the morning, and he made water only a few minutes before the accident occurred; his pulse was natural, and 76; he had great pain in the urethra in passing his urine, which was tinged with blood; in the afternoon he complained of pain in the scrotum, in the left groin, and over the pubes, to which 30 leeches were applied; in the evening he complained of pain, and numbness in the left groin and thigh, to which warm fomentations were applied; he took light nourishment during the day, was in good spirits, and wrote a note to his brother and myself. We applied a linen roller round the body; made a hole in the bed and bedding, and contrived a sort of leather

funnel, so that he should have no occasion to move when the bowels were relieved.

18th.—Passed a tolerable night, having slept several hours; complains of great pain in making water, which is still tinged with blood; he once heard the bones crepitate when moving unconsciously, but it did not give him much pain; pulse 74 and natural, tongue clean, and moist; has pain higher up in front of the abdomen, above the pubes; bowels not being moved, he took a table spoonful of castor oil which having no effect, was repeated at 2 P. M.; applied a soft leather belt round the body instead of the linen roller, but he cannot bear the lower straps to be tightened, as the pressure gives him pain above the pubes.

19th.—Was restless during the night, and is much worse this morning, has vomited several times, and is much distressed with hiccough; the urine dribbles away guttatim and gives him much pain. Effusion has taken place into the scrotum and perineum, but to no great extent. We tried to pass the catheter, but could not succeed, either from the urethra being ruptured, or from a stricture of some years' standing, pulse 130, weak and low; cold perspirations on the forehead; has had several loose stools. The hiccough is much relieved by taking ether with camphor mixture, which he says he finds very refreshing.

20th.—Was very restless in the early part of the night; had two stools, passes more urine and with

much less pain, hands quite cold; pulse 145 and very weak; the effusion into the scrotum does not increase, and it has assumed a livid appearance; tongue is clean and moist, but he complains of being very thirsty; has been reading during the morning, is quite sensible, and free from pain, and can scarcely believe that he is in great danger, though he is evidently, and rapidly sinking; since the morning the whole of the abdomen has swollen very much and appears to be distended with air; he is continually dozing, but being unable to obtain sound sleep, at 10 P. M. I gave him, at his own request, thirty drops of laudanum, but he rejected it almost immediately. The hiccough still continued, but he remained free from pain, and died at 2 A. M. the following morning (the 21st.)

The body was examined ten hours after death; the cavity of the abdomen and its contents had a livid, purplish appearance, as if blood had been extravasated through the whole extent of the peritoneum, it contained about six ounces of blood, on which a small quantity of oil floated; the stomach exhibited effused blood on its external surface, and several clots were discovered on its inner membrane. The liver had numerous, and firm adhesions to the diaphragm; there was dark discoloration on its right lobe, and on raising it, a quantity of thick, florid, coagulated blood was found underneath. The intestines were much distended with air, and in several places had the appearance of being bruised; there was a very

small opening in the colon less than the size of a pea, we were not certain, whether it was ruptured, or whether it was caused by the knife; when the intestines had been exposed to the air for about half an hour, they turned of a greenish hue; on removing them, and detaching the psoas and iliac muscles from the os innominatum, on which there was much effused blood, a total separation of the ilium from the sacrum was discovered, at the sacro-iliac symphysis, and a small transverse fracture of the ilium, nearly two inches in length. On cutting through the recti muscles over the pubes, about an ounce of brown colored fluid escaped, of an urinous smell. The ossa pubes were disjointed at the symphysis, the cartilege was torn from the bone on the left side, leaving the surface rough, and there was a space of about half an inch between them. The bladder contained a small quantity of urine, and its external and internal surface had a dull red appearance. The urethra was ruptured, just before its passage through the triangular ligament, and some urine had escaped into the adjacent cellular membrane; the stricture was about six inches from the orifice of the urethra.

From the very great injury the parts had sustained, it may appear surprising, that the patient suffered so little pain; for, excepting when passing his urine, he was quite easy. I attributed this in a great measure to the means we adopted, to prevent the necessity of his being moved from the position in which he was originally placed, immediately after the accident.

Neither when the accident occurred, nor for some time after, did he complain of any pain in the pubes, nor could we discover any injury there while he remained quiescent. As we considered that the result of the accident must inevitably prove fatal, we did not think ourselves warranted in putting him to pain, by trying to ascertain what further injury he had sustained, besides the dislocation of the ilium.

Sir Astley Cooper in his treatise on Dislocations does not, I believe, describe any accident exactly of this nature, but in the VIIth Plate (3d edition 4to,) there is the drawing of an injury something similar to it, in a dislocation of the ilium from the sacrum.

---

# OBSERVATIONS

ON

## THE EMPLOYMENT OF LARGE DOSES OF IPECACUANHA IN DYSENTERY, WITHOUT EXCITING VOMITING.

By W. TWINING. Esq.

DYSENTERY occurs so frequently, and is so often fatal at some seasons of the year in Bengal, that I feel satisfied the Medical Society will receive with indulgence, any observations which may tend to mitigate the sufferings, and restore the health of patients laboring under that distressing malady. In venturing to solicit the attention of the profession to the subject now proposed, I do not wish to uphold any exclusive plan of treatment, nor do I look on one remedy as a certain cure for every stage of dysentery*. Admitting freely the general principles which direct us in the employment of venesection and corresponding remedies in the early or inflammatory stage, as well as a suitable treatment for the hepatic or other

* My present object being merely to show the benefits that have been derived in Bengal, from precision and perseverance in the administration of ipecacuanha combined with gentian and blue pill, in dysentery, I will not attempt to treat fully on the various modifications of that disease.

visceral disorders often connected with dysentery, especially when it attacks persons long resident in India, I could, without deviating from those principles, most strongly recommend the employment of ipecacuanha in very large doses, for the purpose of relieving tenesmus and irritation, restoring a healthy state of the alvine evacuations, and, in more remote stages of the disease, promoting the healing of intestinal ulcers.

To fulfil these intentions, the powdered ipecacuanha has been exhibited combined with a bitter extract, whereby vomiting is counteracted. I have generally used the extract of gentian for this purpose, and by prescribing these two remedies in nearly equal proportions, we may, if requisite, give from six to twelve grains of ipecacuanha without often exciting nausea.

The quantity in which many medicines are taken, determines not only the intensity or quantum of effect, but the mode of action; and the organs and functions on which those actions are directed. This seems particularly the case with ipecacuanha, and the observations at present made induce me to believe, that the most effectual dose of this medicine, when intended to act as an anti-dysenteric, is six grains for an adult: larger doses sometimes produce general uneasiness, and have not been often employed by me in dysentery.

The success of administering ipecacuanha combined with extract of gentian, has been so satisfactory in the greater number of common cases of acute dysentery in which they have been tried, (after suitable evacuations,) that I am willing to bring forward the results without farther delay: claiming no more confidence for the present examples than their number and the nature of the cases may demand; while I observe, that they are only a small proportion of those treated by the same means with similar success, and to the satisfaction of other medical men who saw them.

Ipecacuanha has been so long employed in the cure of intestinal profluvia, that its utility in alleviating some of the symptoms attending those diseases seems to a certain extent acknowledged: but the mode in which it is generally exhibited would leave room to believe, that no great reliance has been of late years placed in this remedy; although it was originally introduced to the notice of the profession in Europe as a medicine of the greatest efficacy in the cure of dysentery. A reference to the history of the remedy, may satisfy us that it has been held in estimation in the cure of that disease, just in proportion as it was administered in large doses; and it was formerly sometimes so prepared by boiling, that the emetic properties of the root were obviated: whereas when given in small doses it has been considered of less efficacy, and in severe cases is now generally looked on as an adjuvant of minor importance; the benefit appearing

to belong in great measure to the other remedies with which it is combined.

A great variety of trials have satisfied me, that the praises formerly bestowed on large doses of ipecacuanha* as an anti-dysenteric are, in many instances,

* The following references may be useful, should different formulæ be desired: they show the confidence with which the remedy was formerly employed.

"Ypecacuanham ad dr. i. in pollinem redactam, in Aquæ Plantaginis oz. vi. cum pauco Syrup. Rosar. Rubr. et Mastiches Puræ pulvere dr. ss. vel simul et semel, vel partitis vicibus, scilicet, in duas distinctum doses, duobus diebus continuis exhibuimus, vidimusque sic curatas dysenterias, etiam eas in quibus pleno erumpebat fluento, et diarrhœas aliquatenus coercitas fuisse." *Magnatus Bibliotheca Pharmaceutico Medica, Vol. 2. Lib. 22. p.* 1142. This author adduces farther evidence from others to the same effect: speaking of two species of ipecacuanha. "Utriusque quotidianus est usus, malunt tamen dilutum, quod vel unius noctis sub dio maceratione aut coctione in aquâ medicam suam virtutem abunde liquoribus communicet. Postea caput mortuum reservatum, denuoque eodem modo præparatum, in eundem usum exhibetur, minus quidem efficax ad purgandum vel vomendum, sed majus adstringens, &c. &c. et adstringendo viscerum tonum restituat." *A Gulielmo Pisone.*

"Ipecacoanhæ radix contusa et drachmæ unius pondere in poculo vini aquæ mixti macerata, deinde leviter bullita, &c. &c. non solum in dysenteria, sed etiam in affectibus ventriculi detur optimo successu." *Raius.*

"Igpegaya, vel Pigaya, optime dicunt dysenterias sanat: ita expurgat ut identidem alvi fluxum sistat." *Johan de Leat, Indiæ Occidentalis Historia.*

"Etiamsi Ipecacuanha inter præstantissima reponi mereatur medicamenta, pro dysenteria curanda, exhibetur tamen aliquando sine exoptato effectu. Eam in enematibus sœpius immiscui pro dysenteriarum curâ, sed semper cum mediocri admodum effectu." *Nicolaus Lemery, Historia Aromat. Simpl.*

"Ipecacuanha is one of the best remedies and most certain for the cure of the dysentery or bloody flux. It stops also other scourings of the guts, but not with equal success. The dose is 20 to 30 grains of the brown, and from 30 to 40 of the gray powder."—*Pomet on Drugs, p.* 25.

founded on the justest grounds; and the remedy appears advisable in the early stage of almost all ordinary cases of acute dysentery: in the treatment of which, the first object (after adequate bleeding) is to clear out the bowels by a dose of castor oil; twelve hours after this has operated freely, the patient should take six grains of powder of ipecacuanha with four grains of extract of gentian and five grains of pil. hydrarg. in three pills, which are to be repeated every night at bed time, and at day light in the morning a dose of compound powder of jalap (dr. i.) is given daily at eleven o'clock in the forenoon, but if the patient be of a very irritable habit dr. $\frac{1}{2}$ will be sufficient for a dose.

By these means we may soon procure a cessation of all the distressing symptoms, and it is then sufficient to continue six grains of ipecacuanha with four grains of extract of gentian every night, giving a smaller dose of compound powder of jalap, or a moderate dose of castor oil every morning, for four or five days more. The above treatment, generally produces a restoration of a natural state of the alvine evacuations so quickly, that patients are with difficulty restrained from using an improper quantity of food in the early stage of convalescence, when, although the evacuations from the bowels may be in a regular and natural state, the intestines must remain weak, ready to be irritated by slight causes, and incapable of digesting any thing, but the most bland food. During the treatment now detailed,

great attention is requisite to the quantity of food used, as well as its quality. Not more than six oz. of food and drink together should be taken at one time, nor should this quantity be repeated oftener than is absolutely requisite to prevent the patient from sinking; in severe acute cases, half this quantity should not be exceeded. By thus strictly attending to the quantity of food and drink used, it is probable, that the ingesta will be almost entirely absorbed in the upper portions of the small intestines; so that the colon, which is the seat of dysentery, may be as nearly as possible empty while in an irritable state, and during the subsidence of disease, or the healing of ulcers*. Bread and tea, or milk and sago are the most proper, to which soups in limited quantity may be added during the progress of recovery: solid food of any sort except bread not being allowed, until convalescence is far advanced. Should thirst be urgent, the patient may drink oz. ii. of cold camomile tea, but ought not to repeat this oftener than once in an hour, however urgently required; it is the best drink that can be used, and does not increase thirst.

When this plan of medicine and diet is followed, the ipecacuanha seldom produces vomiting; but a healthy state of the bowels is speedily restored. In a few cases, six grains of ipecacuanha combined with gentian have caused vomiting, but

* These remarks refer to the dysentery which has come under my observation in Bengal. Without positive proof of the propriety of the measure, I could not venture to recommend this scale of diet in scorbutic dysentery.

this circumstance has been exceedingly rare; and it has often happened, that patients were not sensible they had taken medicine possessing nauseating qualities. In more than one instance, medical men were subject to the same treatment for dysentery, and expected that half the quantity of medicine taken would make them vomit; still they experienced no such effect: being equally surprised at the exemption from vomitimg, and the early and complete relief from suffering and dysenteric symptoms which the remedy effected. Twelve grains of ipecacuanha have been often given to adults combined with eight grains of extract of gentian, in four pills, without exciting vomiting; and half that quantity has been taken by a child thirteen years of age without causing nausea*. I have never known five grains of ipecacuanha combined with the same quantity of gentian in pills, nauseate an adult. Some persons who were watching the effects of these large doses, expressed doubts as to the quality of the ipecacuanha, in use at the General Hospital; therefore, for the purpose of removing any chance of fallacy on this point, three grains of the medicine from the same bottle were given without the gentian, and it produced free vomiting, this was repeated several times so as entirely to satisfy those who attended to the experiment. Some other combinations of the same remedy produce a similar effect, appearing to divert the action of ipecacu-

* If we desire any proof that much smaller doses of ipecacuanha given alone will generally excite vomiting, a reference to the experiments made by Dr. Pye in 1745, and again in 1754 may be satisfactory. Besides many other trials, 239 doses of two grains each were given to patients of various ages, and of these 212 produced vomiting.

anha from the stomach and to direct it towards other organs; as is well known to be the case when a moderate dose of jalap is given with as much ipecacuanha as would alone excite vomiting, instead of which the combination acts as a mild and satisfactory purge; this effect is rendered more certain if a small quantity of cream of tartar or other vegetable acid be added. A consideration of these established facts, might induce us to try other combinations for the same purpose, when gentian is not procurable. It is of importance that the extract of gentian be not burnt, or otherwise impaired in quality, for then it will not have the desired effect in preventing vomiting.

In many of the slighter cases of dysentery, ipecacuanha and gentian may be given night and morning, without the blue pill, a small dose of compound powder of jalap being ordered daily at noon; but it has appeared to me, that the efficacy of the other remedies is very much increased by the blue pill.

The first effects of ipecacuanha given in ordinary cases of acute dysentery, as above directed, are generally a slight increase in the secretions from the bowels, the evacuations becoming more copious and feculent; pain and tenesmus are abated, while the quantity of blood and slime immediately decrease and soon disappear altogether. At the same time I have frequently observed, that a change takes place in the specific gravity of the feculence voided; a sediment

appearing at the bottom of more fluid stools. This sediment is frequently a light gray powder resembling bran; occasionally it is more dense like pounded slate; and sometimes, though rarely, it is of dark brown color, and in small lumps like split pease. Similar appearances are sometimes seen in the evacuations of dysenteric patients who are recovering under a daily employment of purging by pulv. jalap. comp. The appearance just noticed, almost invariably indicates that a favourable change is about to follow, and it seems to denote, that the coats of the intestines are prepared to assume healthy secretions. When this appearance is observed, unattended with blood, and the patient is free from pyrexia or pain on pressing the belly, we may give smaller doses of ipecacuanha and gentian with blue pill at bedtime, and go on with some mild purgative every morning, being at the same time most cautious in allowing any increase of diet.

If the above treatment be steadily pursued for a few days, scarcely any other medicine will be requisite in most cases which apply in an early stage of the disease. At the same time I most strenuously urge the necessity of a free use of the lancet, and repeated bleeding by leeches, in all recent cases of dysentery when there is either pyrexia, morbid sensibility of the belly on pressure, evacuation of blood with the stools, or tenesmus. But when repeated bleedings have accomplished all that can be wished

from them, ipecacuanha, with the other medicines above stated, will be found of infinite service in soothing irritability, and restoring a healthy state of the bowels. I need not add, that tepid baths, fomentations, and poultices over leech-bites while they are still bleeding, are useful. Where the free use of calomel has been chiefly relied on, and employed to salivate, in some instances a purging and tenesmus have still continued, and in these the combination of ipecacuanha and gentian has then been employed with the most happy results. Opiates have generally appeared injurious in dysentery, except when given with calomel, so as to cause that medicine to be retained in the first portion of the intestines, while it may act on the secretions of the duodenum and liver. The treatment now proposed, has appeared more remarkably effectual during the rainy season in Bengal, when dysentery is most prevalent, and when the functions of the skin are liable to be much influenced by the damp atmosphere, as well as by the sudden alternations of temperature. However, I did not observe, that the good effects of the medicine were connected generally with any perceptible influence as a diaphoretic.

My observations on the effects of large doses of ipecacuanha, being the result of practice in the lower provinces of Bengal, I can only speak of the remedy in this climate, and my first wishes will be gratified if the same results attend its employment in other

places. I allude particularly to the drier atmosphere of upper India, and the hot dry climate of Madras; for the forms and terminations of diseases, as well as the effects of medicines, are so much modified by climate and situation, that the test of experiment is requisite before we can place much confidence in this remedy when used under different circumstances, although it has been employed here with remarkable success.

In forming a due estimate of the value of any plan of treatment employed in the wards of a public institution, we must bear in mind the habits of such patients as are sent to an hospital; for it is probable that in some of them disease has been aggravated by improper diet, and all sorts of imprudence; and that a remarkable change in the symptoms would take place from the regular habits and diet of the hospital, independent of medicine. I have endeavored to select cases as little as possible under the influence of such causes, and where the recovery could with strict propriety be ascribed to the medical treatment. Several of the subjects of the following observations were not hospital patients.

Case I.—Robert Sharpe, ætat 25. Admitted 30th November 1827. A slight made man, of light complexion, about two months in India, and known to be of sober habits. Has been suffering from dysentery eight days; passes much blood with very

small quantities of yellow feculence; goes to stool ten times an hour through the day and night; there is little pyrexia, pressure on the belly gives pain.

Apply twenty leeches to the belly, and use tepid bath,—to wear a flannel dress.

*R.* Pulv. Jalap. C. dr. ss.

Dec. 1st.—Was at stool every five minutes during the day, but less frequently in the night; stools scanty and mixed with blood; the last evacuations this morning consist of only a little fluid blood and water; no pyrexia; skin dry, very little pain on pressing the belly, and no griping.

Pulv. Ipecac. gr. vi.
Extract. Gentian. gr. iv.
Pil. Hydrarg. gr. v. in three pills now, and repeated at bed time.
P. Jalap. C. dr. 1. at noon. Tepid bath.

Dec. 2d.—Had about a dozen stools in twenty-four hours; no pain; had nausea and vomiting after the last dose of pills; skin soft, but there is very little sensible perspiration.

Pulv. Ipecacuanhæ, gr. iii.
Extract. Gentian. gr. ii.
Pil. Hydrarg. gr. v. in two pills in the morning, and repeated at night.
Pulv. Jalap. C. dr. ss. at noon.

Dec. 3d.—Four natural stools in twenty-four hours; he has no pain, and passed no blood.

To take half an ounce of castor oil.

Vesper, had many loose stools after the oil.

To take three grains of ipecacuanha and two grains of extract of gentian in a pill.

Dec. 4th.—Had no stool in the night, three free stools this morning. Repeat the pills at bed time as last night.

Dec. 5th.—Had three stools yesterday, but was not up all night; two stools this morning, the last is figured.

Ext. Colocynth. C. Pil. Hydrarg. *aa* gr. ii. in a pill.

Dec. 6th.—Three stools, free from pain or pyrexia.

No medicine.

Dec. 8th.—Discharged.

Case II.—Ursin L'Abbe, ætat 21, a Frenchman of delicate constitution and slight make, steward of the Ship Œdipe; of temperate habits and good character, arrived in this river six or seven weeks, has been living on board ship and very seldom on shore. Admitted 22d January 1827, having been ill for six weeks with dysentery, has a dozen stools in twenty-four hours, mixed with blood, and attended with some straining. Belly rather hard, and there is morbid sensibility on pressure. Ordered, castor oil oz. i. Ten leeches to the belly, and tepid bath afterwards. This patient took Pulv. Ipecac. gr. vi. Extract. Gentian. gr. iv. in two pills, every night from the 22d to the 29th January, and some castor oil or rhubarb daily in the morning.

January 29th.—Two stools in twenty-four hours, and he felt well; the evacuations were of a dark bi-

lious color, he was therefore ordered Calomel. Extract. Colocynth. C. each five grains in the morning, and castor oil at noon, which treatment was repeated the next day, and operated freely. Nine grains of ipecacuanha and six of extract of gentian were given in three pills every night at bed time until the 3d February, when his bowels were regular, and being in all respects quite well he returned to his duty on board ship.

Case III.—A gentleman of dark complexion, and stout make, twenty-six years of age and two years in India, of most regular and temperate habits, was affected with dysentery in the latter end of March 1827. The disease commenced as a common purging which rapidly increased, and in four days he passed scarcely any thing by stool except blood and mucus; he had restlessness and anxiety, with little pyrexia, there was some thirst with a white tongue, and total loss of appetite. He suffered much pain in the ascending colon and sigmoid flexure, and there was morbid sensibility on pressing over the course of the colon. The desire to go to stool was so incessant, as to deprive him in great measure of rest at night. For four days he kept very quiet, used mild aperients, and observed a very spare diet, but the disease became worse daily.

On the 28th March, he was in a state of miserable irritation, with tenesmus, and purging of blood and slime.

I was then requested to prescribe for him, and ordered Pil. Hyd.—Pulv. Ipecac.—Ext. Gentian. *aa* gr. v. night and morning, and P. Jalap. gr. xx. Potass. Supertart. gr. xlv. T. sennæ dr. i. aquæ anethi. oz. iss. daily at eleven o'clock.

He was much better next day, less frequently at stool, and passed less slime and blood; the medicine had not produced nausea.

31st.—Slept,—irritation and frequency of purging much abated. Ordered P. Ipecac. gr. vi. Ext. Gentian. gr. iv. every night at bed time, and the purgative to be taken early in the morning. On the 4th April his bowels were quite regular, and medicine omitted. During this treatment a very spare diet was used. This patient had suffered a dreadful attack of dysentery in August and September 1825, he was then treated according to the usual course of evacuants and calomel to salivate, by which he was reduced to the lowest degree of debility, and his life was only saved by a voyage to sea. He considered the second attack much of the same description as the early stage of his former illness, and ascribed his recovery entirely to the ipecacuanha and gentian.

The following case is one of several sent to me by Mr. John Dempster, who was well satisfied with the results of this plan of treatment, which he was

induced to adopt when he had charge of the sick of His Majesty's 47th regiment, at that time accommodated in a wing of the General Hospital, at Calcutta.

Case IV.—John Devitt, ætat. 27.—Seven years in India, admitted 12th August 1826, with acute dysentery; he was bled to forty-four ounces on the first and second days in hospital, which may serve to show the attack was considered of great severity. He was again bled on the 15th and on 30th August to twenty oz. each time, while the usual treatment of purgatives and calomel with opium was employed until the 8th September. His stools were then frequent and scanty, mixed with blood, and he was suffering from a very distressing tenesmus.

An ounce of castor oil was ordered on the morning of the 8th September, and five grains of ipecacuanha with as much extract of gentian given in pills, and repeated three times daily. At the same time anodyne enemas were occasionally administered.

An immediate change in the dysenteric symptoms took place, he improved daily, and was discharged to duty on the 22d September.

Case V.—Andrew Fagan, ætat. 31,—a sailor, never on shore in India until landed sick, and only arrived in the river a few days. A small but strong made man,

of dark complexion, ill five days with dysentery, has taken no medicine except one dose of salts. Has now twenty-six stools in twenty-four hours, and has sometimes been purged above twenty times in a night; the evacuations are mixed with blood, and he has pain in the lower belly, but very little pyrexia. Admitted on the evening of 26th September 1827, and ordered venesection to lb. i. Ol. Ricini oz. i.

Next morning sixteen leeches were applied to the lower belly, and he was put into the tepid bath. Six grains of ipecacuanha and four of gentian were given morning and evening.

Sept. 28th.—Only two stools in twenty-four hours; no pain or pyrexia.

Pills repeated daily, and to take P. Jalap. Comp. dr. i. at noon. Tepid bath.

Sept. 29th.—Four stools after the jalap: one natural loose stool at night, no pain. To repeat two pills morning and night.

Oct. 8th, 1828.—Discharged well.

Case VI.—John Plomer, aged thirteen years, August 13th 1827. A delicate lad of dark complexion, born in India. Ill eight days with dysentery, having twenty scanty stools in twenty-four hours, consisting of little else than blood and mucus, the small quantity of feculence present is of a deep

orange color; belly flat, doughy, inelastic, and painful on pressure; he is much emaciated. Pulse rapid and weak.

Eight leeches to the belly, and foment afterwards. Calomel ten grains, castor oil to-morrow early, not above 4 oz. of food or drink at one time.

August 14th.—No alteration in the symptoms; leeches, fomentation, and calomel repeated, also oil to-morrow.

August 15.—Had 24 stools in the day and night, with blood and slime as before.

Blue pill, grs. v. at bed time; castor oil to-morrow.

August 16.—No alteration except that he is weaker: treatment repeated as yesterday.

August 17.—Dysenteric symptoms not better, he is very weak, pulse 110.

Blister to the belly on the course of the transverse colon.

*R.* P. Ipecac. gr. iv. Pil. Hydr. Ext. Gentian. *dā* gr. ii. to be given in pills early in the morning, and repeated at night. P. Jalap. C. dr. ss. at noon.

This treatment was repeated daily until the 20th, when his gums had become swollen by the mercury, but there was very little alteration in his condition, except progressive debility and emaciation. On the 20th, the pills were omitted, and he had half an ounce of castor oil, which was repeated next day.

August 22.—He had 10 stools yesterday and 12 more in the night, consisting mostly of blood and slime, with some feculence of orange color; skin dry, belly more hollow and retracted than at any other period of his illness, the sigmoid flexures of the colon can be distinctly felt contracted and ropy. Gums less swollen, but he is becoming daily weaker.

*R.* P. Ipecac. gr. vi. Extract. Gentian. gr. iv. to be given in pills, and repeated night and morning daily. Blister to the lower belly.

August 24.—Only sixteen stools in 24 hours, less blood and slime, more feculence. Says he is better, and feels hunger for the first time since his illness. Food not increased. Medicine continued daily.

August 27.—Four loose free stools, no slime or blood:—is decidedly stronger. Medicine omitted. From this date to 20th September, he took no medicine, except two doses of castor oil. Returned to school on the 20th September, and had no relapse.

Case VII.—Thomas Williamson, aged 46.—Several years in India, was attacked on the 9th August 1826, with dysentery, and passed bloody stools. Leeches and fomentations were applied to the belly, and the treatment had consisted chiefly of chalk mixture with laudanum and tinct. catechu. On the 21st and 22d, calomel was administered to the extent of 15 grains, and he had taken one dose of eight grains of ipecacuanha.

I was requested to see him on the 23d August, he then had frequent purging with blood, and perpetual inclination to go to stool, but no pyrexia. Ordered Pulv. Ipecac. gr. vi. Extract. Gentian. gr. iv. in two pills at bed time, which were repeated daily until the 29th, when he was well; having taken no other medicine except one dose of castor oil on the 25th of August.

Case VIII.—S. Rieley, ætat. 38.—Two years in India, admitted into hospital on the 8th January 1827. Ill ten days with dysentery, having daily 15 stools mixed with blood. Tongue dry and nearly clean, but little pyrexia; one ounce of castor oil was given on admission, and six grains of ipecacuanha with four of extract of gentian in two pills at bed time.

The pills were repeated every night, and the oil in the morning until the 11th January, when there were only three stools in the day, and none at night. The castor oil was then omitted, but the two pills repeated at bed time.

12th January.—Two stools in 24 hours: no more medicine was given, and the dysentery did not return.

Case IX.—In July 1826, I was requested to attend a patient suffering severely from dysentery. She was of light complexion and a very delicate constitution, resident two years in Bengal. About eight

months previous to my first visit, I was informed, she had a severe attack of acute dysentery, for which she was not bled, but after taking a dose of castor oil in the morning she had scr. i. of calomel at bed time, and ten grains of the same medicine night and morning on the next day, by which she was freely salivated, and the distressing symptoms very much moderated for a time: at the end of ten days the disease returned, and she became soon as ill as before, but had more copious evacuations; after this she was treated with mild aperients, and occasional small doses of calomel, at the same time she was allowed some solid food; and nutritious broths, as well as sago and *salip misree** were taken with too little restriction as to quantity. By these means a degree of feverishness and frequent purging were kept up, with very irritable condition of the bowels, and bloody stools.

When I saw this patient on the 6th July 1826, she was much emaciated, had a frequent and weak pulse, flushed face, and loaded tongue. The belly was elastic, full, and tense, and there was some pain in the region of the ascending and transverse colon; at this time, she had above 20 stools daily, consisting almost entirely of blood, and attended with distressing tenesmus. A very abstemious diet of the mildest description was ordered, in quantity not $\frac{1}{4}$ what had been before used; and

* Orchis mascula.

she took P. Ipecac. gr. vi. Pil. Hydr. gr. v. Extract. Gentian. gr. iv. in three pills every night, and the same quantity every morning early: at 11 o'clock daily, she had dr. i. of P. Jalap. C. in Aq. menth. pip. In eight days the mouth was affected by the mercury, the tenderness of the colon abated, and purging became rather less frequent, but the stools consisted mostly of blood. The same quantity of ipecacuanha and gentian was given night and morning without blue pill, and the compound jalap every second day at 11 o'clock. On the 19th July, she was free from any symptom of bowel complaint, and medicine was omitted. I saw this patient nearly a year afterwards, and she had had no return of dysentery.

Case X.—Pat. Hing, ætat. 46.—Light complexion and spare habit, nine years in India, admitted 26th Sept. vesper. Has had severe dysentery for three days, having one hundred stools in 24 hours of blood and slime. Goes to stool this day six or seven times every hour, and has been up more frequently than that in the hour since he came to hospital: the stools are scanty, consisting of blood and slime with some dark grey feculence. The belly is tender on pressure, and there is no pyrexia. Has taken medicine for two days, but does not know what it was.

Twelve leeches to belly.

*R.* Pulv. Ipecac. gr. vi. Pil. Hydrarg. gr. x. Extract. Gentian. gr. iv. in four pills.

Sept. 27th.—Stools copious and of dark color, with blood and slime, he thinks less frequent since midnight.

Repeat the four pills now, and again at night. P. Jalap. C. dr. i. at noon.

Sept. 28th.—Had 25 stools yesterday, and 20 at night, composed of much bloody water, with scanty, grey feculence. A clean moist tongue; no pyrexia; passed little urine.

Repeat the four pills now.—Tepid bath, and afterwards apply a large blister to the belly.

Pulv. Jalap. C. dr. i. at noon.

Vesper.—Twenty-one stools in the day, mostly of blood and slime.

P. Ipecac. gr. vi. Ext. Gentian. gr. iv. h. s.

Sept. 29th.—Fourteen scanty stools in night, mostly blood and mucus, but there is less blood voided than on admission.

Pulv. Ipecac. gr. vi. Extract. Gentian. gr. iv. in two pills now, and repeated at bed time. Pulv. Jalap. C. dr. 1. at noon.

Sept. 30.—Fifteen stools in the day, scanty, and with very little blood, eight stools at night, moderate in quantity, watery, with fine grey and slate colored powder in large quantity at the bottom of the stool pan; tongue clean and moist; no pyrexia.

Repeat the two pills now, and again at night.
P. Jalap. C. dr. ss. at noon.

October 1st.—Had three copious, loose, feculent stools yesterday, six stools at night, less free, but there is no blood or slime, a copious reddish grey powder, at bottom of the pan; no pyrexia: treatment as yesterday; blister to be kept open.

October 2d.—One fluid stool of deep orange color yesterday, and one this morning.

Repeat the pills this morning.

Vesper.—No stool this day, he is free from pyrexia, and has no pain except from the open blister.

Give sulphur. dr. ii. in water.

October 3d.—Two stools in night, fluid feculence, without odor or appearance of sulphur; blister very sore, and discharging freely.

Repeat sulphur dr. ii. in water.

October 4th.—Three free loose (fluid) stools in 24 hours, with odor and appearance of sulphur.

Repeat the sulphur.

October 5th.—Two stools in 24 hours, as above; no pain.

Allow the blister to heal.
P. Jalap. C. dr. ss. at noon.
P. Ipecac. gr. vi. Ext. Gentian. gr. iv. in two pills at bed time.

October 6th.—Two copious, loose, feculent stools in 24 hours. Treatment of yesterday repeated.

October 7th.—Two copious, feculent stools with odor and color of sulphur, though none of that medicine has been taken since the 4th. Treatment of yesterday repeated.

October 8th.—Medicine omitted.

October 9th.—Two copious, natural, loose stools, partly figured; he feels well.

Took no more medicine except on the 13th, when he was costive, and had then Extract. Colocynth. C. Pil. Hydrarg. each gr. v.

This man's food consisted of tea with two oz. of bread, night and morning, and four spoonfuls of sago four times a day, until the 9th October, when soup was allowed, and on the 12th October chicken.

Case XI.—Charles Cockburn, ætat. 53,—a ship's carpenter of sober habits, stout made, and of dark complexion, somewhat emaciated; two months in India on board ship in the river: had slight fever and obstructed bowels in August. Admitted on the afternoon of 27th September 1828, ill four weeks with dysentery, passing blood and slime; had been treated on board ship for some time with salts and castor oil, afterwards with laudanum and brandy; the latter suppressed the quantity of evacuations, but increased the frequency of calls to stool. For the last five days, has taken fifteen grains of calomel daily, which has produced a very sore mouth, but he thinks he

has derived no benefit from it, and on account of becoming daily worse, he is sent to hospital. Has 32 stools in 24 hours, a fluid, scanty, grey feculence, mixed with blood and slime; no pyrexia, great pain in cæcum, and sigmoid colon, respiration short, and he has a sense of weight in the chest.

Twenty leeches to the belly.

Ext. Gentian. gr. iv. Pul. Ipecac. gr. vi. in two pills now, and repeated at midnight.

Sept. 28th.—Was nauseated, and had only six stools in the night, (has usually had above 12 per night latterly); tenderness of lower belly little abated.

Twelve leeches to the iliac regions. Tepid bath.

Repeat two pills now as above.

P. Jalap. C. dr. i. at noon, in Aq. Cinnamom. oz. i.

Vesper.—Had 14 copious stools after the jalap.

Repeat two pills at bed time as before.

September 29th.—Had one stool last evening, and another at daylight, consisting of light grey feculence in small quantity, with little slime or blood.

Repeat the two pills in the morning, and compound jalap at noon, as yesterday.

Vesper.—Eleven scanty stools after the jalap; little slime and no blood.

To take two pills at bed time, as before.

Sept. 30th.—One scanty fluid stool of grey color. There is evident enlargement of the cæcum, and

pressure over the sigmoid colon gives pain; mouth still very sore; there is loss of appetite and some thirst, but no pyrexia.

Sulphur, dr. ii. in water. Tepid bath at noon.

A blister on each side, over the cæcum and the sigmoid colon.

Oct. 1st.—One moderate loose stool yesterday, two others at night of natural color, with strong odor of sulphur: same medicine repeated next day.

Oct. 4th.—Had no medicine yesterday, two natural, figured stools in 24 hours, without slime or blood; no pain.

After this, he had no medicine, except four mild purgatives, and twice sulphur to keep the bowels free; and the ipecacuanha and gentian pills were repeated five times. He was discharged to join his ship on the 14th October. I would gladly have detained him longer to be certain his cure was permanent, but the ship was about to sail.

These examples afford sufficient evidence of the great benefit following such large doses of ipecacuanha, in severe cases of acute dysentery, in some of which the cure could not be ascribed to any thing else, in others the blue pill or calomel has been freely used together with that remedy, the efficacy of which has also been very remarkable in some instances, where the dysenteric symptoms remained

after the system was under the the influence of mercury. Patients, who applied for treatment early, and with pyrexia or acute symptoms, were bled freely; but in late stages of the disease, and when ulceration is established, the benefit of venesection, carried to a great extent, has been less evident. The application of leeches was always useful when there was any pain.

Excepting Cases VII. and VIII., those above related were exceedingly severe, and the patients suffered much from tenesmus, and the constant desire to go to stool; so that rest by day or night was prevented. Case VII. was improperly treated before I saw him, but this, as well as Case VIII. although of considerable duration, was not attended with very severe suffering; they received almost immediate benefit from the ipecacuanha. Probably regularity, and hospital diet alone contributed much to the quick recovery of Reily; and I am not disposed to undervalue the benefit that may be derived from tepid baths, restrained diet, and other accessaries of hospital treatment in cases like those of Sharpe, L'Abbe, and Fagan, just landed from ships.

In very advanced stages of the same disease, and in the varieties of chronic dysentery, when it affects persons who are long resident in India, with broken constitutions, or who are suffering different kinds of visceral diseases; we could hardly expect the same degree of success from the treatment above described.

Nevertheless, the same plan, somewhat modified, has been very often employed in chronic dysentery with remarkable benefit; at the same time, I admit, that in other cases apparently similar, it has frequently failed. There are two kinds of chronic flux, in which I have never derived much benefit from the ipecacuanha: these are, the purging that sometimes attends protracted cases of spleen disease; and a form of chronic diarrhœa, which is frequently met with in the beginning of the cold season, characterized by frequent purging, the stools being copious and fluid, in fact watery, and of a bright orange color. Those who have come to me with this form of disease were mostly emaciated persons, who had been several years in India*; and some of them told me they had existed many months with a profuse purging of this sort, without much evident change in the constitution, or increase of debility.

When dysentery has been protracted and assumed the chronic form, the patients that came under my

* There is much interest connected with inquiries concerning the best mode to be adopted in many extreme cases of this description in Bengal; a voyage to sea often restores them when nothing else will. A similar remark has been made with respect to some descriptions of protracted dysentery in the West Indies, which commence recovering from the moment they sail. Desgenettes gives a very remarkable instance of the same sort in Egypt, where 400 cases of chronic dysentery were sent on board ship from Alexandria; 19 of these patients died within a few days after embarkation, the rest all recovered. Have we any means of ascertaining, in what stage of dysentery patients are unlikely to receive benefit from going to sea, so that we may avoid the cruelty of embarking persons in a hopeless state, who are susceptible of no change except aggravated misery by the removal?

observation suffered from the continuance of a copious, watery purging, sometimes attended with the appearance of fermentation like a mixture of chalk and beer; often a portion of the aliment passing undigested and the fæces being of various colors, but mostly of pale grey, and slime or a white matter abounding, while blood was rarely present in the stools. In these cases, much the same mode of administering ipecacuanha has been attended with benefit, after many other remedies had been tried in vain. Only blood-letting has not been requisite; but a blister to the belly, kept open for many days, was of great service. Nearly the same spare diet is requisite, as that prescribed in the acute dysentery; for the power of digestion is so weak, that increased quantity of food adds to irritation without augmenting the ratio of nourishment taken up by the system. When an irritable condition of the intestines has obviously depended on a slight degree of hepatic congestion*,

* The frequency of *Hepatic Dysentery* in tropical climates is very generally admitted. In my observations for the purpose of ascertaining the relation of hepatic disease and dysentery, and the periods at which the one follows the other; I have in many cases noticed symptoms which induced me to believe, that hepatic irritation and congestion may be caused by extensive disease of the great intestine. In these instances, there had been no evident symptoms of liver disease, until the dysentery had existed many days: in some cases the bowel complaint was on the decline, and the quantity of evacuations considerably decreased, when attention was called to the state of the liver, by the occurrence of some tumefaction at the right hypochondre, and a tenderness on pressing over the liver; the patient has complained of a sense of tremor and uneasiness in the belly, which has been attended by slight pyrexia, general restlessness, a hectic flush in the cheek, and some irritability of mind: the evacuations being then generally scanty in quantity and of deep orange color inclining to red; more rarely pain in the top of the right shoulder has supervened. For this state a few leeches have been applied, and repeated with benefit, although the patients were weak; but most commonly these

with depraved state of the biliary secretion, much benefit has followed the use of ipecacuanha and calomel with rhubarb and hydrarg. cum cretâ in this proportion:

℞. Pulv. Rhei, Hydrarg. cum cretâ, *aa* gr. viii.
Calomel. Pulv. Ipecac. *aa* gr. ii. misce. to be taken every morning;

giving every night at bed time,

Pulv. Ipecac. Comp. Hydrarg. cum cretâ, *aa* gr. viii.
Calomel.—Ipecacuanhæ, *aa* gr. ii.

It is not my purpose, at present, to attempt a full disquisition on the nature of dysentery; these remarks being, for the most part, limited to such cases as have been treated with success by ipecacuanha, combined with various other remedies according to the state of the disease; but still the cure appeared to be owing in a great measure to that medicine.

symptoms have subsided in three or four days, on giving daily some doses of calomel and rhubarb in the morning and dr. i. of sulphur in the afternoons, restricting the diet to tea, bread, and sago, *in very small quantities*. The calomel and rhubarb seem to solicit an increase of the biliary secretion, whereby the congestion is relieved, while sulphur given in a small quantity of water is a mild aperient, affecting chiefly the colon; a considerable part of this medicine is voided almost unchanged, and it has appeared to me to act favorably as a local application to the ulcerations of the great intestines. It is perhaps hardly safe to advance opinions concerning the state of internal organs in disease, without the support of repeated dissections. But such symptoms, as above described, have occurred so frequently, and in the order now related, that I cannot help ascribing them to hepatic irritation and congestion; the former arising from a disordered state of the blood which is returned by the veins of the diseased intestine to circulate through the liver, the latter dependant on suppression of the purging. These sentiments regarding hepatic disease, as occasionally excited by ulcerated colon, require the confirmation of much more numerous observations; but at present they seem sufficiently established to claim attention.

The following cases may show the benefit derived from the treatment under consideration when employed in chronic dysentery.

Case XII.—Mrs. Gilbert, ætat. 30, a pale and emaciated subject, six years in India, stated that she had suffered from dysentery about three months before coming to hospital; for the first month she neglected her complaint: on the 12th July, she applied to a medical man whose memorandum I received, showing that she had suffered severely from acute dysentery, and was, when she applied to him, miserably reduced by the continuance of the disease. He prescribed pills of calomel, antimonial powder, and opium, which salivated her; the dysentery ceased for the time, and her general health appeared much improved. However, the purging returned soon after ptyalism had subsided, and she came to hospital on the evening of 26th August 1826, having 30 stools in 24 hours, of grey color, watery, and mixed with slime; no pyrexia, and but little pain on pressing over the course of the colon. The tongue was moist and red, with a few white patches as if excoriated.

Ordered P. Ipecac. gr. vi. Extract. Gentian. gr. iv. in two pills at 6 P. M. and the same dose to be repeated at 10 P. M.

August 27.—Had six stools in the night, which she says is not half so frequent as the purging has been for some time past.

Two pills, as before, were given in the morning, and oz. i. of castor oil, with oz. i. of cinnamon water at noon.

August 28.—Had 13 stools yesterday; there is now pain on pressing over the scrob. cordis, and increase of debility.

Blister to scrob. cordis. Two pills, as formerly, with five grains of blue pill in the morning, and the same dose repeated at noon. Tinct. Camphoræ C.—Spirit. Æther. Nitros. *aa* dr. i. in a draught at bed time.

August 29.—No stool yesterday, and only three during the night; says she has not been so easy for many weeks. Ordered to take three pills, the same as yesterday morning, and half an ounce of castor oil at noon. The oil did not operate, and therefore a purgative enema was used which produced the desired effect.

After this date there was no return of the purging, except for 12 hours on the 2d Sept. on which day there was heavy rain and she got cold. The disease was then checked by two grains of opium in one dose, after which she remained above three weeks in hospital, and gradually recovered her strength: during the last fifteen days that she was in hospital, mild aperients of castor oil or rhubarb were repeatedly required to keep the bowels free. In this patient, the ipecacuanha and gentian produced nausea. This woman left hospital on the 26th Sept. 1826, and was

seen repeatedly during several months afterwards, remaining during that time in good health.

" Case XIII. - H. P. of the brig Britannia. May 1828. A stout young man, but not muscular, nor of firm fibre; an Indo-Briton. Suffered a severe fever and dysentery four years ago at Java, and since that has been subject to bowel complaints repeatedly; is at present afflicted with dysentery, he has constant calls to stool, and passes blood with clayey and white slime, portions of undigested food as well as shreds of membrane and pus; in his own words, passes '*blood and corruption*' every ten minutes.

" He took P. Ipecac. gr. vi. Ext. Gentian. gr. iv. Pil. Hydrarg. gr. i. three times a day.

" On the third day, he was only purged three times during the night, and had refreshing sleep. He continued the pills for a fortnight, at the end of which time he was quite well. His diet during the treatment was bread and broth only."

The above case as well as the next were sent me by Dr. D. Stewart, who was induced to try the ipecacuanha by the result of some of my early cases. He says: " It is impossible to tell you the satisfaction this case gives me; it was decidedly the worst form of common chronic dysentery; the patient had frequently before been salivated, but his recovery on those occasions had always been tedious and imperfect. In reply to your

queries, as to the general utility of ipecacuanha and gentian in dysentery, I should say, that in all acute cases the whole of the antiphlogistic regimen in a strict sense is necessary: after the inflammatory action is quite subdued, its effects are admirable, either *per se*, or combined with blue pill according as the previous character of the complaint is bilious or not, but chiefly in relation to the constitution of the patient. I do not think I have ever seen it fail among the Indo-Britons, a class of people generally of lax fibre, phlegmatic temperament, and often of cachectic habits. On the contrary, in Europeans of full and sanguineous temperament, even after free depletion, I have found it fail, unless combined with mercury in some shape. In these latter, however, unless the liver be much involved, it is not necessary to salivate; and with previous general, and occasional repeated topical bleedings according to circumstances, the combination of ipecacuanha, gentian, and blue pill, in my own practice, succeeds in a way that has given me very great pleasure, and the recoveries are more speedy, and less subject to relapse, than in those treated after the usual mercurial plan."

"Case XIV.—R. C. aged 17. July 1827.—An Indo-Briton, emaciated, and pale, with swelled belly, enlarged spleen, dysenteric purging, and hectic fever. A variety of treatment was pursued for 14 days, comprising the spleen powder, nitric acid, opium, bark, and acid-baths, but without any benefit. He was now reduced to the last degree; foul sinuses had form-

ed along the ribs on each side, and he had sloughing sores on the back and at some of the joints. He purged blood, pus, slime, and frequently whole pieces of mucous membrane entire.

"On the 5th August, he commenced taking P. Ipecac. gr. vi. Ext. Gentian gr. iv. Quininæ Sulphat. gr. ii. in decoction of bark, with an opiate every night, and a table spoonful of castor oil every morning. This treatment was continued for two months; he recovered perfectly, and is now the stoutest of his family."

Case XV.—Serjeant D. Guthrie, five years in India.—This case is furnished by Dr. John Dempster, by whom the patient was treated. Guthrie had suffered from a chronic purging for two years, and in that time had been under the care of several medical men, before he applied to Dr. Dempster on the 6th September 1826. He was then ordered five grains of P. Ipecacuanhæ, and as much extract of gentian in pills; these were repeated three times a day, and a dose of castor oil was given every third morning. He was cured in 16 days, and remained well when last seen on the 23d December.

Case XVI.—Dr. W. Chalmers was induced to try the same treatment for a female patient who was under his care in September 1826. She was of delicate constitution, and had been about four years in India, during the last 13 months of which she

had suffered a distressing bowel complaint; the stools frequent, copious, watery, of a light grey color, and occasionally tinged with blood; and accompanied with tenesmus. This patient was reduced to a sad state of debility by protracted disease, so that she frequently fainted. The six grains of ipecacuanha, with four grains of extract of gentian, were given twice a day in ½ an ounce of cinnamon water, with 30 drops of Tinct. Gentian. Comp. This treatment was continued for 19 days, and the patient was cured without taking any other remedy. She had been advised to take a small dose of compound powder of jalap at 11 o'clock every third day, but a few of the first doses of the mixture produced so great a change for the better, that she could not be persuaded to try any other remedy.

The 58th Formula, in Dr. Paris's Pharmacologia, may owe its efficacy in some degree to the tincture of catechu: I have sometimes used it with benefit in patients of a very soft and relaxed habit, when there was no symptom to contra-indicate an astringent; but, generally speaking, the cases that have been under my care seemed to require the blue pill, to correct the secretions; the gentian has usually prevented vomiting, and I believe directs the salutary operation of the ipecacuanha more especially towards the large intestines.

Case XVII.—Jas. Vaill, ætat. 31. Admitted on the evening of 15th Sept. A tall thin man, of dark

complexion, five and half years in India, generally healthy until the last two years, and in that time he twice had fever with pain in the left side. Has been ill seven months with constant purging; at first passed great quantities of blood and slime, but not recently. Says he took calomel and opium without much benefit for six weeks; he then went to Dacca, and continued the calomel to salivate him; used to go to stool five or six times every hour before he was salivated, and there was blood in the evacuation. Since he was salivated, has usually ten or eleven stools in 24 hours without blood.

Give no medicine, stools to be observed.

Sept. 16.—Had five very fluid, dark grey stools in the night, moderate in quantity, and passed without pain or straining; tongue white and moist; urine free, he has some pain if the lower belly be pressed.

Pulv. Ipecac. gr. vi. Extract. Gentian. gr. iv. P. Hydr. gr. v. in three pills now, and to be repeated at bed time. Blister to lower belly.

Sept. 17.—Four loose, fœtid stools in 24 hours, in moderate quantity.

Repeat the three pills, morning and night.

Sept. 18.—Two stools yesterday, only one at night.

Repeat the three pills, morning and night.

P. Jalap. C. dr. ss. at noon.

Sept. 19.—Two stools after the jalap yesterday, and two more at night.

P. Jalap. C. dr. ss. now. Three pills repeated at bed time.

Sept. 20.—Four stools in 24 hours, the two last partly figured; feels much better.

P. Jalap. C. dr. ss. now. P. Ipecac. gr. vi. Extract, Gentian. gr. iv. at bed time. The same treatment was repeated on the 21st.

Sept. 22.—Two stools (purged) in the day, and two stools at night, less fluid.

P. Jalap. C. dr. i. in the morning, and the pills repeated at bed time. The same treatment was repeated on the 23d.

Sept. 24.—Four stools in the day, one at night.

P. Ipecac. gr. vi. Ext. Gentian. gr. iv. night and morning daily.

Sept. 28.—Two stools in 24 hours, a natural loose feculence, in moderate quantity; says he has not been so well since March.

Two pills at bed time.

October 10.—One stool in 24 hours.

Two pills at bed time continued.

October 13.—One stool every 24 hours; feels well: no medicine.

Since this paper was read at the Society's Meeting, I have seen the Madras Reports containing Mr. Job's statement of the efficacy of ipecacuanha and calomel given in doses of dr. i. each, in acute dysentery, after the employment of copious venesection.

The following valuable report from Dr. Mortimer, of the Madras General Hospital, proves that the very free use of ipecacuanha combined with calomel, is well adapted for the treatment of dysentery at stations where a hot atmosphere prevails, and the soil is dry, and sandy.

To W. TWINING, Esq. &c. &c.

"My dear Sir,

"I have just been favored by Mr. Orr, of H. M. 89th Regiment, with the perusal of a letter from you, requesting him to apply to the Garrison Surgeon and myself, for information on the subject of the use of ipecacuanha in the treatment of dysentery. I have not had the pleasure of seeing your paper on this subject; but, from the extract of gentian being mentioned in your letter, as given in combination with ipecacuanha, I am led to conclude, that there may exist some difference between our modes of exhibiting it. It is a remedy, of which I have, for a long period, had a very favorable opinion, and been in the habit of prescribing in dysentery; although, until lately, my experience of its benefits has been, in a great measure, confined to the treatment of natives. I have much pleasure, however, in forwarding you a Table,

hastily, and I have no doubt, as far as arrangement is concerned, imperfectly constructed, showing the course of a few cases taken, without selection, from those treated in the same manner, during the last four months; and which may be received, as exhibiting fair average examples of the progress of the disease, under the treatment in question. I shall also state briefly the circumstances, under which the ipecacuanha is employed in the treatment of this disease, and subjoin the detail of one of the cases included in the Table.

"I regret much that, in consequence of Mr. Johnston, the Garrison Surgeon, being absent from Madras, I am unable fully to add his valuable testimony on this subject. I can, however, take it upon myself to inform you, that the inference resulting from my own more limited experience, has been strengthened by his opinion of the practice; favorable however, as my own is, regarding it, and although the results of my experience of it are such as to induce me to continue it, with a satisfactory degree of confidence, a more extensive trial and accurate collection of cases will be necessary, to admit of a fair inference, regarding its comparative success.

"The first remedy is bloodletting, general and topical, or either, the extent being determined by the effects produced. The former is considered as more particularly indicated, when the state of the pulse manifests constitutional excitement; the patient

being always kept in an erect position during the operation; while the latter is had recourse to, with reference to the urgency of local symptoms ; a dose of castor oil is then administered, and the appearance of the alvine discharge is the symptom, by which the extent to which it may be necessary to exhibit mercury is determined. In some cases, especially where the patient had been admitted at night, and his motions not been seen, a dose of calomel, to the extent of 10 grains or perhaps more, has been given before the oil, in anticipation of structural derangement of the liver, in general, existing to a greater or less degree in dysentery. The state of the hepatic discharge then, as indicated by the appearance of the alvine evacuations, regulates the exhibition of mercury, and the preparation preferred, in the course of the treatment, is blue pill. At the commencement of treatment, the quantity usually prescribed is five grains three times a day, and it has been seldom or ever necessary to continue it to the extent of producing ptyalism,—a uniform discharge of healthy bile being the object to be attained. The consideration of the comparatively small quantity, by which this has been in general produced, when at the same time the ipecacuanha was administered in the manner about to be adverted to, may, perhaps, fairly admit of the opinion of a favorable influence being exerted by the latter, in promoting the effect of the mercury, and rendering a less quantity necessary for correcting vitiated secretion of the liver, and restoring a flow of healthy bile.

"I may here mention, that the subject of one of the cases in the table (Schoefield) had formerly been a patient in this hospital, in consequence of hepatitis, and from the appearance of his evacuations, on admission, as well as from the local symptoms, there was every reason to suspect the presence of structural affection of the liver. He had been salivated, &c. for the former attack, and although he took a larger proportion of mercury than usual, during his treatment for dysentery, yet the *total quantity* was comparatively small, and restored healthy secretion to the liver, without the induction of ptyalism.

"The use of the ipecacuanha is generally commenced after the bleeding, or five or six hours after admission, and given in doses of five grains each, in combination with an equal quantity of powder of gum acacia, every hour or second hour, as the patient's stomach may be able to bear it without producing vomiting. During its exhibition, the use of fluids is limited as much as possible, and the patient generally complains of a good deal of nausea, although not so much as might be anticipated, and its rejection by the stomach is by no means a common occurrence.

"The immediate effect of the acacia, or why vomiting is not so readily produced, when the ipecacuanha is given in combination with it, as when exhibited alone, I do not pretend to explain; being satisfied

by the experience of having exhibited a much larger quantity of it, in the manner alluded to, than I have been able to administer by itself, without producing the effect in question. In some cases, it has been given to the extent of between 90 to 100 grains in 24 hours.

"Fomentations are constantly applied to the abdomen, and occasional enemata given, to relieve the griping and tenesmus, although, from the relief of these symptoms, which in general follows the use of ipecacuanha, the latter are not very frequently required.

"I am, &c.
(Signed,) W. MORTIMER."

## DYSENTERY.

Joshua Ashley, private, ætat. 23, 3d Battalion Artillery, 16 months resident in India, 10th April 1828. Admitted at 11 A. M. complaining of griping and straining at stool, the evacuations from his bowels by account consisting of blood and slime. Has also constant pain across the upper part of the abdomen, aggravated by pressure; tongue furred; pulse 90 of good strength, and round; heat of skin rather above natural; urine by account high colored; says his complaints are of three days' standing.

Detrahatur sanguis, v. s.
Sumat postea Ol. Ricini, oz. i.

Vesper. On oz. xvi. of blood having been abstracted, his pulse became small and weak, and he

complained much of nausea; has had six scanty, partly brown colored, feculent stools, mixed with slime and blood, and passed with considerable straining and some griping; still complains of considerable pain on pressure above the umbilicus; pulse 78, rather sharp; tongue much as before; skin of natural heat, and rather rough.

Admoveantur hirudines xii parti dolenti.
Et hora somni sumat calomelanos, gr. x. Pulv. Ipecac. gr. iii. forma boli.

11th. Eleven or twelve stools, consisting principally of mucus and blood, with some yellow and green feculent matter; had some griping and considerable straining; had some pain increased on pressure across the lower part of his bowels, but particularly in the right iliac region; tongue furred and rather dry in the middle; pulse 80, soft; skin of about the natural heat, and dry.

Sumat statim Olei Ricini, dr. vi.
Sumat etiam secundis horis Pulv. Ipecac. et Pulv. Acaciæ, *aa* gr. v.
Foveatur abdomen constanter.

Vesper.—Eleven scanty stools, passed with much straining, and some griping; evacuations partly feculent and yellow colored, with a considerable quantity of tenacious mucus, mixed with blood; has still some pain about the situation of the ascending colon; tongue cleaner; pulse 72, soft; skin soft; dr. i. of ipecacuanha since morning; some nausea.

Sumat, hora somni, Pil. Hydr. gr. x.
Cont. Ipecac. omni hora, nisi adsit vomitus.
Cont. fotus.

12th. Has had eleven scanty stools since last night, partly feculent, mixed with slime and blood, and passed with less griping and straining. The last motion, just evacuated, consists principally of feculent matter of a bright brown color, with less slime and blood. Has pain, increased on pressure, in the right hypochondrium, and extending partly across the belly; tongue dry, and furred in the middle; skin soft and cool; pulse 80, soft; has taken 45 grains of ipecacuanha, and complains much of nausea.

Sumat Pil. Hydr. gr. v. bis die; admoveantur hirudines x parti dolenti.
Cont. Ipecac. et si adsit tenesmus urgens, injiciatur enema oleosum subinde.

Vesper. Twelve motions, scanty, and of a bright brown color, with less slime and little or no blood; considerable griping and almost no straining; pain of the belly removed; tongue as in the morning; pulse 70, soft; skin soft: 45 grains of ipecacuanha since morning.

Cont. Medicamenta.

13th.—Four alvine evacuations during the night, of a bright yellow color, feculent, and almost without slime; had some griping, but no straining; no pain of abdomen on pressure; tongue white in the middle, and dry, with moist, red edges; pulse

70, soft ; skin moist, and of about natural heat ; has taken 40 grs. of ipecacuanha since last visit.

Cont. Medicamenta.

Vesper. Two feculent, yellow colored evacuations, with some griping, and no straining ; tongue as before ; pulse 68, soft ; skin soft ; 45 grs. of ipecacuanha.

Cont. Medicamenta.

14th.—One liquid, feculent evacuation, passed with some griping, but no straining ; tongue white in the middle, with red edges ; complains of thirst, and nausea ; pulse 70, soft ; skin cool and moist ; has taken 45 grains of ipecacuanha.

Cont. Medicamenta.

Vesper. Four more consistent, and pretty natural colored, feculent evacuations ; had some griping ; little or no straining ; tongue, pulse, and skin, as in the morning ; has taken 50 grains of ipecacuanha since morning, and complains of constant nausea.

Cont. Medicamenta.

15.—Four pretty natural colored, feculent evacuations, without straining ; says he has some griping ; tongue continues furred in the middle, with red edges ; thirst ; pulse 68, soft ; skin cool and soft ; 45 grains of ipecacuanha since last night.

Cont. Medicamenta.

Vesper.—Three feculent, consistent evacuations, with some griping, but no straining ; tongue, pulse,

and skin, as in the morning; has taken 50 grains of ipecacuanha during the day.

Cont. Medicamenta.

16th.—Two rather scanty, yellow, feculent evacuations, without griping or straining; tongue rather white in the middle, and moist; pulse 70, soft; skin soft and cool; has taken 45 grains of ipecacuanha.

Cont. Ipecac. secunda quaque hora tantum.
Cont. Pil. Hydrarg.

Vesper.—Several feculent, consistent stools, without griping or straining; tongue clean; pulse and skin soft; took 25 grains of ipecacuanha during the day.

Cont. Medicamenta.

17th.—Three feculent, yellow colored evacuations, without griping or straining; tongue pretty clean; skin soft and cool; pulse 60, of natural strength; 25 grains of ipecacuanha.

Cont. Ipecac. et sumat Pil. Hydrarg. gr. v. horâ somni.

18th.—Three stools since yesterday,—feculent, partly formed and of natural color; no griping, straining or uneasiness; tongue clean; pulse and skin soft: 45 grains of ipecacuanha.

Cont. Ipecac. tert. quaque hora tantum.
Cont. Pil. Hydrarg. hora somni.

19th.—Several feculent, consistent, natural colored evacuations; no pain or uneasiness whatever;

tongue clean; pulse and skin natural; appetite improving: 25 grains of ipecacuanha.

Sumat Ipecac. bis in die.
Cont. Pil. Hydrarg. hora somni.

20th.—Three feculent, natural colored evacuations, since yesterday morning; tongue clean; pulse and skin natural; appetite good.

Omittantur Medicamenta.

21st.—No stool since yesterday morning; no pain or uneasiness; tongue clean; pulse and skin natural.

Sumat Olei Ricini, dr. vi.

22d.—Two natural evacuations, without griping or straining; no pain or uneasiness; tongue clean; pulse and skin natural; appetite improving.

Convalescent.
Half diet.

Continued to gain strength daily, and left the hospital on the 25th May.

*Table showing the Result of Treatment with Ipecacuanha and Calomel, &c. at Madras.*

| Patients' names. | Dates of admission. | Appearances of the alvine evacuations on admission. | Dates on which the alvine evacuations became of a healthy color, and without slime or blood. | Quantity of calomel exhibited before this period. | Quantity of blue pill ditto. | Quantity of ipecacuanha, ditto. | Quantity of blood abstracted by venesection. | Quantity of blood abstracted by leeches, (No. of) | Total quantity of calomel used during the treatment. | Total quantity of blue pill used during the treatment. | Total quantity of ipecacuanha used during the treatment. | Date of convalescence. | Date of discharge. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | grs. | grs. | grs. | oz. | No. | grs. | grs. | grs. | | |
| Wm. Legiston, | 1st Mar. | Thin, partly feculent, slimy and bloody. | 5th March. | 20. | 15. | 218. | 20. | 18. | 20. | 60. | 570. | 13 Mar. | 22 Mar. |
| Jos. Jelly, | 16th do. | Mucus and blood. | 19th do. | „ | 20. | 73. | „ | 12. | „ | 100. | 508. | 28 do. | 30 do. |
| Tho. Schoefield, | 3d Apr. | Partly feculent, offensive, bloody and slimy. | 7th April. | 30. | 30. | 53. | „ | 12. | 30. | 105. | 283. | 15 Apr. | 19 Apr. |
| Jos. Ashley, | 11th do. | Blood and slime. | 13th do. | 10. | 20. | 110. | 16. | 22. | 10. | 65. | 550. | 20 do. | 22 do. |
| Ed. Connor, | 20thMy | Slime and blood. | 20th May. | 10. | 45. | 118. | „ | 18. | 10. | 80. | 80. | 31 May. | 11 Jun. |

Ipecacuanha has sometimes appeared to act favorably as an adjuvant to the remedies employed in that peculiar form of Indian dysentery denominated colonitis: in such cases, as well as in the more chronic stage of ulcerous colon, it has aided other medicines used with the intention of acting as local applications on the diseased surface. I will hope on a future occasion, to place before the Society the results of some trials on these points.

# CASE

OF

# RECTO-VESICAL LITHOTOMY.

BY

G. WADDELL, M. D.

*Presented Aug. 4. 1827.*

ALTHOUGH nearly ten years have elapsed since the vesical mode of extracting calculi from the bladder was first taught and published by M. Sanson, and notwithstanding the eminent success which has attended the operation, as improved by Professor Vacca Berlinghieri of Pisa, and practised by that distinguished individual and his followers in Italy; I have been unable to find a single instance on record of its having been performed in our own country. In some of the schools there of anatomy and surgery, it has indeed been noticed, but only to be reprobated; and I observe with surprise, that no allusion is made to the operation by Sir A. Cooper, in his Lectures, lately published by Mr. Tyrrell.

The deplorable consequences which generally follow accidental wounds of the rectum from the

lateral operation of lithotomy, is the assigned cause of the prejudice which exists in England against the recto-vesical method of performing it; but it does not appear to me that the cases are precisely parallel. If, in performing the lateral operation, the beak of the gorget should happen to slip from the groove of the staff on entering the bladder in the act of pushing it home, the direction being upwards and backward, the instrument would pass obliquely across, and enter the rectum *above* the neck of the bladder, and hence the wound in the gut be in a situation, the most favorable for the formation of stercoraceous urinary fistula. On the other hand, in the recto-vesical operation of Vacca, which consists in dividing the urethra, prostate, and neck of the bladder without involving its lower portion, the evil is entirely avoided; "for the incision of the intestine is at least an inch *lower* than the neck of the bladder: the edges of the solution of continuity being in contact, are only separated for the passage of the urine, and the parietes of the intestine form a true valve which opposes the entrance of fecal matters into the bladder." The only other objection against the operation, deserving attention, is that brought forward by Scarpa, and maintained as insuperable by Dupuytren, to wit, the impossibility of performing it without dividing the left seminal duct, and the liability of virtual castration being inflicted, when both happen to run parallel to, and in contact with, each other in their passage to the urethra. To this a ready reply has been given by

Vacca. "Of 80 patients," says he, "so operated on, not one suffered any diminution of their sexual powers."

With these introductory observations, and with the view of directing the attention of members to an operation, concerning which surgical authorities so widely disagree in opinion, the following case is submitted to the Society.

On the 13th of August 1825, while our troops held possession of Rangoon, I was requested by Mr. Tweedie, Field Surgeon to the Bengal division of the army, in conjunction with Mr. Jackson, Medical Store Keeper, to visit a patient of his affected with stone in the bladder. The subject of the case was a boy nine years of age, born of Mussulman parents settled in the town, and the disease was said to have been of seven years' duration. In his efforts to make water, the ordinary symptoms of the complaint were sufficiently marked and distressing; but in the intervals of micturition he experienced little inconvenience; his figure was slender, his health good, and his disposition lively and playful. The existence of the stone having been clearly ascertained, by the introduction of the sound, and examination *per anum*, the recto-vesical operation for its extraction was proposed by Mr. Tweedie, and performed next day.

14th.—The boy being placed near the end of a high table, in the position usual for the lateral operation, and the thighs held apart by the assistants, the

operator introduced the fore and middle fingers of his left hand into the rectum so as to embrace and fix the stone, and with a scalpel, having its cutting edge defended with cloth wrapped round it till within half an inch of its extremity, an incision about $\frac{3}{4}$ of an inch long was made into the shoulder and neck of the bladder, in the direction of the raphe; the scalpel being then withdrawn, the stone was brought away by a pair of common ball forceps. Several impediments occurred during the operation, such as the evacuation of the patient's bladder and bowels, the bearing down of the transverse folds of the rectum, and the recession of the calculus before the forceps; nevertheless the time occupied did not exceed five minutes, and not above half an ounce of blood was lost. As soon as the little fellow was released from the table, he had another stool, with some degree of straining; but all uneasiness quickly subsided, and before we left the house he seemed to feel as if nothing was the matter with him.

The stone (which is herewith presented) is of a conoid form, $4\frac{1}{2}$ inches in length, $3\frac{2}{10}$ of an inch in circumference, at its greatest diameter, and weighs six drams: its surface is rough and granular, and its appearance otherwise such as belongs to the ammoniaco-magnesian variety of those concretions.

Having at this time been ordered off to join the army in advance upon Ava, I did not again see the patient, and am indebted for the further history of

the case to notes taken by Mr. Tweedie, and which that gentleman sent to me on the eve of his return to England, on furlough, in December last.

15th.—Continued easy all yesterday, had two stools and made water twice; urine mixed with fæces and tinged with blood; slept well; no pain or febrile irritability; passed about two ounces of feculent urine to-day with some difficulty; frets a good deal on account of the usual quantity of his food having been lessened.

24th.—General health remains good; urine still feculent; slight discharge of a greenish matter from the urethra; is out of bed all day, walks about the house, and occasionally goes out to amuse himself.

27th.—Has been feverish for the last three days, with pain in the umbilical region, and frequent calls to stool; the day before yesterday passed, by the urethra, a live lumbricus six inches long.

2d Sept.—Urine bloody for some days, and passed with pain and straining; relieved by fomentations and opiates; is much better this morning.

17th.—In good health and spirits; urine still at times mixed with fæces, and its passage interrupted by flatus, discharged almost entirely by the urethra during the day; but at night, when asleep, is occasionally voided by the rectum.

20th May 1826.—Has been long perfectly well, and has gained much in flesh. The communication between the bladder and rectum, appears to have closed about six weeks after the operation.

The above operation, it will be remarked, differs in two particulars from that described and recommended by Sanson; 1st, In the staff not having been employed; 2d, In that the fibres of the external sphincter ani were left undivided.

As regards the staff; from the form of the stone, the nipple-like extremity of which was felt impacted in the neck of the bladder, the use of that instrument was deemed superfluous, and in not dividing the sphincter, Mr. T. was determined by the size of the stone, which did not require this enlargement of the incision for its removal. It would perhaps have been better, however, if this last deviation from Sanson's method had not been made; for, by cutting through the sphincter, the resistance which this muscle naturally opposes to the action of the rectum and abdominal muscles *inter dejiciendum* would have been partly taken off, and thus the *free* access of the fæces into the bladder obviated. Unfavorable as this circumstance was, in the present instance, to the healing of the wound, we have nevertheless seen, that the cure within a reasonable period was complete; and the fact is the more worthy of notice that, so far as it goes, it may tend to allay the undue apprehensions entertained

of recto-vesical fistulæ as a consequence of the operation.

As in all great surgical operations, the principal end in view is the preservation of life, it follows, that of two modes of performing an operation, that which is the least likely to endanger the patient's safety must be the best; and that the recto-vesical possesses, in this respect, the superiority over the lateral operation, there appears to be little room for doubt. According to Sir A. Cooper, the number of deaths in London from the lateral operation, taking all ages, is one to eight*. Dr. Yellowly, in his Observations on Prout's Estimate of Mortality from Lithotomy, states the number who die from the operation, throughout the whole kingdom, to be one in six and a half†, and Dr. Marcet even so high as one in five, which corresponds with the average of those who are cut off from this cause in the Hotel-Dieu, Paris. Nor, considering the situation, length, and depth of the wound, is it at all a matter of astonishment, that so many should perish from the lateral operation. In the hands of the most dexterous surgeons, the patients occasionally die of uncontrollable hæmorrhage; more frequently they expire a few hours after, from a sudden depression of the vital powers, or what has been called by Mr. Travers *prostration without reaction*, "a state characterized by a failure of the heart's mo-

* Vide Lectures on Surgery, vol. ii. p. 215.

† See Annals of Philosophy, for May 1821.

tion, chilliness, torpor, and convulsions*," and in a large proportion of fatal cases the immediate cause of death is peritoneal inflammation. On the contrary, (*cæteris paribus*, that is, the prostate and bladder being in a healthy state, and the restorative powers of the constitution unimpaired,) there is abundant evidence to show that the improved recto-vesical operation is attended with little or no danger to life. The incision is of small extent, and almost superficial; gives but little pain to the patient; is performed with ease and celerity by the surgeon; and from the increased separation at this point of the rami of the pubis, stones of a greater magnitude may be removed without having recourse to instruments for breaking them down, a practice, however necessary, but too often productive of the worst consequences.

* See Travers on Constitutional Irritation, pp. 135, 136.

# CASE OF HYDROPHOBIA

## IN A NATIVE BOY.

By J. T. PEARSON, Esq.

*Presented Sept.* 1, 1827.

JULY 28th. 1827.—12½ P. M. A boy aged ten, has been brought to me, afflicted with hydrophobia. He was bitten two months ago; and the wound, which is situated upon the left forearm, is perfectly cicatrized, the cicatrix being hard and somewhat elevated above the surrounding skin; there is now no pain in the bitten part: last night at 9 P. M. it was first perceived that he swallowed with difficulty; at present violent spasms of the throat and muscles of respiration are immediately excited by the pouring out of water before him, or fanning with a punkha, accompanied with a look of horror; the pulse is 88, and quite regular; tongue covered with a white crust; one stool to-day.

Bleed to four ounces.

Let him take twenty drops of the solution of Superacetate of Lead upon two drs. of sugar.

The medicine has been swallowed with great difficulty.

1½ P. M.—He appears a little better, taking some water from a *lota** which is held to his mouth, but with great difficulty; spasms on fanning continue violent; tongue furred; pulse 96, and intermitting.

Repeat the medicine.

2½ P. M.—Drinks with greater ease; pulse 75, feeble, and intermitting.

Repeat the solution.

3½.—Taking a little sago; pulse 80, intermitting.

4½.—Not so well by any means, but able to swallow with great exertion.

Repeat the solution to xxv drops.

5 P. M.—Apply a blister to the throat; pulse intermits every third or fourth stroke, and is very feeble.

6 P. M.—Pulse not to be felt at the wrist; unable to stand, but not paralyzed.

7 P. M.—Pulse to be felt very feeble; intermitting, and about 65 in a minute.

Repeat the solution, xx drops.

* Native small brass vessel.

8½. Has just had some castor oil; swallows rather better; tongue furred; has slept since seven; pulse quick, 100, still intermitting.

Repeat the solution xx drops.

10 P. M.—Pulse 80, no intermission; has slept an hour and half composedly, no pain in the abdomen; on pinching the legs he does not complain of any pain; swallows water from a shell, *held in his own hand*, and without much trouble; spasms on fanning, however, continue.

Repeat the solution xxv drops.

12½, July 29th.—Pulse extremely feeble again; tongue parched and dry; he drinks a little better, notwithstanding.

Repeat xx drops of the solution.

6 A. M.—Has slept well; drinks with a little more difficulty; I think, has had four stools from the oil; pulse 80, and stronger.

Repeat the solution to xxv drops.

10 A. M.—Very much better; *drinks from a shell quite easily*, though still disturbed by the motion of the hand or punkha before him; pulse, feeble and intermitting, 82 in a minute.

Repeat the solution xx drops.

The blister has risen well.

11 A. M.—Going on well; wishes to have some sago; let him have some, with a small quantity of brandy.

11½ A. M.—Not so well; cannot take the sago, at least not more than a tea spoonful has been swallowed; drinks with greater difficulty; pulse 72, regular and feeble.

Repeat the solution to xxx drops.

12.—A little better, if any thing; though the spasms continue violent on attempting to drink, yet he can master them by exertion; pulse 86, full.

Repeat the bleeding to iv ounces.

On proposing this bleeding, a hubbub arose amongst the relations of the boy. They declared I was going to kill him, and took him away from my house, where he had hitherto been, in spite of what I could say or do to the contrary. I sent several times to know if I should come to see him, but the answer was that "they had given him native medicines, and his soul to God." In the evening, however, he was much worse, when they accepted my offer, and I went to him at

10 P. M.—Spasms over the whole body; sensible; pulse 120; tongue furred; no paralysis; has had one stool; swallows with great difficulty, but makes great efforts; thirst great.

Repeat the solution to xxx drops; apply a large blister to the chest.

I waited twenty minutes after the medicine had been given, when the pulse had fallen to 90.

11 P. M.—Repeat the castor oil, half an ounce, and give another dose of the lead at 12.

1½ A. M. July 30.—Very ill indeed. The oil has been taken, but it has, as yet, produced no stool. The attendants neglected to give the medicine at 12; spasms very violent; sensible; several people obliged to hold him down; tongue white and dry; thirst great; pulse 100, quick and feeble; skin hot and dry; unable, even with the greatest exertions, to swallow the smallest quantity of water.

Repeat the solution to xxx drops.

The solution has been swallowed after great exertions.

I again saw him for the last time at three, when he was held down by several persons sitting upon his limbs. The spasms were very violent, and never left him for a moment, till death took place at half past four.

The medicine used in this case was, I believe, first tried, and with success, by Dr. Fayerman of Norwich; and, from the mildness of the symptoms, and evident amelioration at 10 A. M. on the morning of the 29th, no doubt rests on my mind, that equal success would have attended this case, had not the

patient been removed for several important hours from my care.

P. S.—I ought to mention that, notwithstanding the large quantity of lead which was taken, no symptoms of paralysis were ever produced, excepting for a short time at 10 P. M. on the 28th, and no pains in the stomach or bowels existed.

ON THE

# POISON OF THE NAGAS.

By P. BRETON, Esq.

*Presented July 7th 1827.*

HAVING received from Mr. Swinton, Secretary to Government, a supply of the vegetable poison which the Nagas* are stated to be in the habit of applying on the point of their arrows, I have recently subjected it to the test of experiment; and the accompanying is an account of the result, which may perhaps prove interesting to the Medical Society.

Mr. S. writes:—"I have now the pleasure to send you a copy of Captain Grant's account of the Naga vegetable poison, which was communicated by Mr. Tucker to me. You will observe that it is not a varnish, as you call it. What has led you into this mistake is, that I formerly sent you a specimen of varnish, being the juice or sap of a very large tree, peculiar to the valley of Kubboo in Munnipore, called the Kiew tree. This juice is said to be of a very poisonous nature, causing the face and hands of the person who touches it to swell, and be covered with small

* A tribe of people inhabiting the states to the eastward of Sylhet.

sores. I supposed, therefore, that if introduced into the circulation it might be fatal, and that this was the poison with which the Nagas tipped their arrows. The result of your experiments showed that it was harmless. The real Naga poison was what I sent you last, and is described in the annexed extract. The Nagas refuse to give the name of the tree, or to point it out.

---

*Extract of a Letter from Captain F. Grant, 39th N. I. attached to Rajah Gumbheer Sing's Levy, to C. Tucker, Esq.*

"I send some of the poison with which the Nagas poison their arrows. I tried its virtue, by putting a little on the point of a penknife, and slightly piercing a fowl. The bird died in five minutes. The whole of the Nagas to the E. N. E. and S. E. of the Munnipore valley use it. They make it into a paste with tobacco water, and rub it on the points of their arrows. Whilst on my late trip in Kubboo, I made every endeavor to find out the tree, but could not succeed. The Nagas would not be induced by promise of reward to discover it, but referred from one to another. They all agree in their description of it, as being of enormous size. The poison is extracted by making incisions in the bark, from which it oozes. The men who are employed in collecting it, are obliged to take the greatest precautions, and cover their mouths and nostrils whilst engaged in doing so. They are fed by the hand of a second person all the

time, and for several days after they have given up working. They also say, that the trees are found some where in the neighbourhood of Kubboo."

---

*Experiments with the Vegetable Substance with which the Nagas are stated to tip their Arrows.*

June 24, 1827.—This substance, (which is soluble in water,) softened with a few drops of spirits of wine was, on the point of a lancet, inserted in the inside of the thighs of two pigeons: vomiting two or three times, and three or four evacuations (one or two of which were watery) occurred; general uneasiness and languor were manifested; and they both died in a convulsive fit of about two minutes' duration,—one in 40 minutes, and the other in 42 minutes after the insertion of this poison.

June 28.—Fifteen minutes after 2 P. M. the poison was in a similar manner inserted in the inside of both thighs of a pigeon, and the effect was as follows: nineteen minutes after 2, two motions in quick succession; twenty-two minutes after 2, slight vomiting and general uneasiness and languor manifested; thirty-four minutes after 2, slight vomiting as before; thirty-six minutes after 2, again vomiting; forty minutes after 2, vomiting repeated, and a copious watery evacuation, and the pigeon died in a convulsive fit which lasted about $1\frac{1}{2}$ minutes, at the expiration of 37 minutes after the insertion of the poison.

Nineteen minutes after 2 P. M. a second pigeon was in a similar manner infected: upwards of half an hour elapsed without any symptom being apparent. It then couched, and seemed a little drowsy. A few minutes afterwards it rose, and walked about for a few minutes on a table on which it was placed, and then again couched and remained upwards of an hour without any other apparent symptom than languor. Giddiness then came on, and it rose and attempted to walk, but fell head foremost every time it attempted to move. The giddiness remained two or three minutes, and returned in the same manner at an interval of $\frac{1}{4}$ of an hour. At half past 3, it had a copious watery evacuation; and from that period it remained in a languid state, without any other symptom being manifested, until 10 minutes after six, when a slight convulsive fit came on, and it died two minutes afterwards.

A third and fourth pigeon were infected in the same manner with this poison. In both, symptoms were manifested similar to those which were apparent in the first pigeon, but less violent; and they both died in similar convulsions of about two minutes' duration, the third pigeon in 45 minutes, and the fourth pigeon in 42 minutes after the poison was inserted.

In the inside of both thighs of two rabbits the poison was inserted with the point of a lancet. Ten minutes afterwards the first rabbit manifested gene-

ral uneasiness; its respiration became very quick; and a tremulous motion of its sides and flanks was perceptible. About half an hour after the poison was inserted, a copious watery evacuation took place, and then it appeared to be getting languid. It however moved about occasionally on the table, without any other apparent symptoms than those described, till the coming on of a convulsive fit, when it suddenly made a bound, struggled violently for two or three minutes, and died at the expiration of 57 minutes after the insertion of the poison.

The second rabbit for upwards of a quarter of an hour appeared unaffected. It then gasped for three or four minutes, as if oppressed by sickness of stomach and difficulty of breathing; became languid, and had a copious watery evacuation. It remained languid, and suddenly it bounded up from the table, and in a convulsive fit struggled violently for about two minutes, and died in 29 minutes from the period of the insertion of the poison.

The rabbits and pigeons were full grown, and in the thighs of each the quantity of poison inserted could not have exceeded five or six grains: yet symptoms were manifested indicative of considerable excitement and irritation; and in all of them, excepting one pigeon, death was produced in less than an hour, a proof of the poisonous quality of this vegetable substance, of which we are at present in possession of no name. From the circumstance of a fowl

having been killed in five minutes by the insertion of this poison, according to the statement of Captain Grant, it is probable that, in its recent state, its power is very active ; but, from a single experiment, no decisive inference can be drawn.

# OBSERVATIONS

ON THE

# MEDICAL TOPOGRAPHY OF TIRHOOT.

By J. EVANS, Esq.

*Presented January 5*, 1828.

THE peculiar localities of any country arising from situation, soil, air, water, &c. must at all times form an interesting topic of philosophical enquiry; but when they become the subject of investigation with a view of elucidating medical science, and explaining the phenomena of diseases, their importance cannot be too highly appreciated. It is principally with this aim that I propose to lay before the Medical and Physical Society an imperfect sketch of the medical topography of Tirhoot, a district justly extolled throughout India for the salubrity of its climate, the fertility of its soil, and the beauty of its scenery.

Tirhoot is situated in the province of Behar, between the 27th and 28th degrees of north latitude. It is bounded on the north by a lofty chain of mountains, separating it from the kingdom of Nipal, and terminating in the Himalaya snowy range, which divides India from Tartary.

From the zillah station Muzuffurpoor, the district extends in a south easterly direction 160 miles to the borders of the Purneah district, and 80 miles north west to Bettiah, and the Gorukpoor district. This tract of country is intersected with rivers and lakes, to the superabundance of moisture arising from which the perpetual verdure that meets the eye may mainly be attributed.

The principal rivers are the two Gunduks, the Bhageeruthee, and Secrani, besides various collateral branches, all of which are navigable into the interior during the rains, when boats of the largest burden are to be seen laden with indigo, grain, ghee, &c. also saul timbers from the forests bordering on the Nipal hills, for the Patna, Moorshedabad, and Calcutta markets.

The climate of Tirhoot is indisputably superior to most provinces in India, enjoying a delightful medium, between the damp and fogs of Bengal, and the dry parching winds of the western provinces. The hot winds are seldom known, and for the most part the prevailing wind is from the east: when, however, from the west, it is not that arid, parching, hot wind that is experienced in the upper provinces during the months of April and May; which no doubt arises from its blowing over a tract of country, thickly studded with vegetable production, and a soil saturated with moisture. The use of the *khusskhuss tattee* is seldom necessary, and although the days are

frequently hot and sultry, the nights are cool, as an easterly wind usually arises about 8 or 9 o'clock at night, to revive the frame worn out and exhausted by the heats of the day. During the months of March and April, hail storms are by no means uncommon, and frequently prove very destructive to the *rubbee* crops, which are just ripening, as well as to vegetation generally; the hail stones, solid, flattened pieces of ice, are of an incredible size, and after a severe storm the face of the country has the appearance of being covered with snow.

The cold season is probably not so severe as in Western India, and certainly is more congenial to the feelings of the old Anglo-Indian than excessive cold.

In ordinary seasons the rains set in about the 15th or 20th of June, frequently with great violence, and continue till the middle of October; they are accompanied with severe storms of thunder and lightning, influenced, no doubt, by the vicinity of the hills. Towards the close of the rainy season, it is not uncommon to see that tract of country called the Terrai, inundated; and as the waters subside, these lands are brought into cultivation, and are productive of luxuriant crops of rice.

The soil is alluvial, exceedingly rich and productive, and particularly adapted for the cultivation of indigo, which is grown in great abundance by European settlers, who are scattered over the district, forming a little colony of themselves, no less conspicuous for

industry and talent, than noted for hospitality and social intercourse. Almost all the European fruits and vegetables are produced in great abundance and perfection; and the pleasing succession of different crops throughout the year, constitutes one of the most distinguishing, as well as lively features of the scenery of Tirhoot. The encouragement which the Government, within the last few years, have given to the cultivation of the poppy, is not only likely to be a source of profit to the native cultivator, but also an improvement to the revenue.

Having thus briefly noticed the particulars of climate, soil, &c. I proceed to detail the diseases that prevail in Tirhoot. During the hot and rainy seasons, the diseases met with are those of tropical climates generally, bilious remittents, intermittents, and dysenteries: the former are probably not so severe as are met with in other parts of India; if taken in time, yielding for the most part to depletion, mercurials, purgatives, and antimonials; in some cases it is necessary to push the mercurial course to the extent of ptyalism. Dysentery, however, is by no means so tractable, and unless checked by the most decisive treatment at the commencement, generally assumes a chronic character, which slowly, but too surely, conducts its victim to the grave. The practice I have usually found most successful is the quick exhibition of calomel, in scruple doses, combined with opium, which seldom or never fails to allay tormina of the bowels, and induce a copious flow of healthy bile: this treatment, however, has only

been successful in such cases where timely application was made for assistance. Cases of acute and chronic rheumatism are also common in this district, occasioned no doubt by great atmospherical vicissitudes, and thoughtless exposure to the damp of night, as a heavy dew is not unusual in the hottest weather.

Cutaneous diseases are also very prevalent, of various types and characters, from a common psora and herpes to the most inveterate forms of leprosy and elephantiasis. The only disease which may be said to be endemial to Tirhoot, is bronchocele, with the physiology and pathology of which we are but little, if at all acquainted. Natives laboring under any inveterate disease, seldom consult a European surgeon, till the malady has become too deeply seated to be eradicated; and then, unless immediately relieved as if by enchantment, they discontinue the remedies used, and the character of the profession is brought into disrepute. They have a far greater reliance on the supposed efficacy of spells and charms, which with them are a panacea for all human ills; and they have neither patience nor fortitude to go through a long continued course of medicine. In this disease, therefore, I have no hypothesis of my own to offer: I may mention, however, that the general opinion amongst the natives is, that the disease is produced by drinking the water of the Gunduk river; they consequently use the water from wells for all domestic purposes. It is not uncommon to see two

villages, situated on the banks of the Gunduk, contiguous to each other, the one with scarcely an individual exempt from the complaint, while in the other the inhabitants are perfectly free from it;—a fact, however, strongly opposed to the idea of its being caused by the water. As we approach that tract of country called the Terrai, north west of the zillah station, the disease is more common, being nearer the hills, which confirms the generally received opinion, that it is more prevalent in the vicinity of mountainous countries. It is a singular circumstance, that many who are afflicted with bronchocele, are also subject to aberration of mind, known in Tirhoot by the name of *Bhauds*; in such, the enlargement of the throat sometimes increases to an enormous size, threatening suffocation on running or taking violent exercise.

Europeans are by no means subject to the disease; and during my residence in the district, I only met with one case of a grown-up person being afflicted with bronchocele; and with him the enlargement of the thyroid gland increased to such a size as to be extremely disfiguring. The children of Europeans are, however, frequently attacked with the complaint, and the only certain remedy is immediate removal from the place where it has been contracted; and the more recent the affection, the greater is the chance of cure.

For Meteorological Register, vide Appendix to the volume.

ON THE

# EFFICACY OF EMETIC TARTAR IN RHEUMATISM.

By J. B. PRESTON, Esq.

*Presented March* 1, 1828.

GAWJEE SINGH, SEPOY, ÆT. 30.

NOVEMBER 18th, 1827.—Admitted 6 A. M., complains of rheumatic pains generally, no fever, tongue foul, bowels regular, appetite good.

*R.* Calomel. gr. ii.
Opii, gr. 1¼ *m.* ft. pil. omni quart. horâ sumend.
*R.* Magnes. Sulphas dr. ii. omni quart. horâ sumend. doses duas horas post. pilul. exhibeand.

19th.—Purged three times and vomited once, skin hot, tongue furred, pains the same.

Habeat. Antim. Tartar. gr. ½.
Aqua, oz. ss. 2da. quaque horâ.

20th.—Pains less, tongue white, skin cool, pains more severe at night than during the day.

Cont. Med. ut heri.

21st.—Pains better, vomited three times, purged twice, tongue covered with a white fur, appetite

continues, skin cool; for the last two days, has perspired during the night.

*R.* Antim. Tartar. gr. viii.
Aquæ, oz. vi. *m.* sumat oz. ss. 2da. quaque horâ, (viz. ¾ of a grain).

22d.—Pains better; purged and vomited four or five times; tongue thickly furred, appetite continues.

*R.* Antim. Tartar. gr. xii.
Tinct. Opii, dr. ii.
Aquæ, oz. vi. *m.* sumat dr. ss. 2da. quaque horâ.

23d.—Pains better; in other respects as yesterday.

Perst. ut heri.

24th.—Pains better.

Perst. ut heri.

26th.—Complains now of pains only in his knees; medicine purged and vomited him; tongue white, appetite continues, pains in the knees on pressure only.

Rept. Antim. Tartar. ut supra. Omit. Tinct. Opii.

27th.—Vomited twice.

Perst. ut supra.

28th.—As before.

Perst. ut supra.

29th —Pains in the knees still continue.

Capiat etiam Camphoræ, gr. x.
Tinct. Opii, gtt. xxv. t. d.

30th.—Pains better, tongue white.

Perst. ut supra.

December 1st.—No pains to-day in his knees, complains merely of weakness; medicine (camphor and tinct. op.) made him giddy.

Perstat ut heri.

3d.—No pains, complains of having had fever last night.

4th.—No fever.

Habeat Pulv. Cinchonæ, dr. ss.
Opii, gr. ½ t. d.

6th.—Discharged.

## OBSERVATIONS.

I do not know of any disease amongst the natives, so difficult of cure as chronic rheumatism. Whether it is equally so in every part of India, I am not prepared to say; but in the cold and damper climates, it is a disease of great obstinacy. I have seen it very frequently supervene after courses of mercury; and this perhaps is the greatest objection to its free exhibition amongst them. It is no doubt to be attributed in a great measure to deficiency of warm

clothing, at those seasons particularly, when the system has been rendered more susceptible, by exhibition of mercury, to the closeness of their houses, and their unguarded exposure to the cold damp air of the morning or at night; at which time, they frequently issue from their huts with little or no covering. The free exhibition of tartar emetic (which, as far as my experience goes, the natives bear remarkably well) will, I believe, be found more successful than the more common modes of treatment. The small quantity of fluid in which it is exhibited, renders it less liable to be rejected by the stomach; and it is sometimes necessary to add, to each dose, a few drops of laudanum (five or six) to prevent its acting on the bowels. At first, it excites a good deal of purging and vomiting; but in general, little or no diminution of the strength; and what seems singular, the appetite is seldom impaired: when it induces vomiting, it simply evacuates the stomach, but does not produce any feeling of exhaustion. Where, however, the strength has been greatly diminished by previous sickness, or where there is great natural delicacy of constitution, it requires some caution in its exhibition; simply observing its effects, and regulating the dose accordingly. Large doses of camphor are frequently useful, where there is no inflammation or tenderness on pressure, and where the pain seems to be more a sequela of the disease, depending upon an altered action of the extremities of the nerves, and which will frequently yield to any general powerful impression upon the

system, particularly if its susceptibility has been previously augmented by a powerful purgative, emetic, or sudorific.

## REDDEE SEPOY, ÆT. 27.

November 8th, 1827.—Was admitted into hospital last month for general rheumatic pains, which are now less; there is considerable enlargement of the tibia about the middle of the bone, a similar enlargement of the radius a little above the wrist, and another of the clavicle. These enlargements have existed for six months, and supervened upon a severe attack of rheumatism. They are at present painful.

*R.* Tinct. Iodinæ, gtt. x. ter in die.

9th.—Pain in the right leg, in the seat of the enlargement, which feels hot; pain in the left shoulder and wrist.

Appl. hirudines v. tibiæ.
Continuat. Tinct. Iodinæ.

10th.—Applicant. hirudines viii. tibiæ.

*R.* Extract Colocynth. Comp. grs. v.
Calomel. gr. i. ft. pil. omni nocte sumend.

In consequence of the increase of symptoms consequent upon the use of the iodine, it is omitted. My object in exhibiting it was to produce absorption of the enlarged bone. Had leeches and purgatives

preceded the use of iodine, this increase of symptoms would not probably have taken place.

11th and 12th.—Mild purgation, without much alteration in the symptoms.

13th.—Swelling in the leg, hot; similar swelling commencing in the left radius.

℞. Antim. Tartar, gr. iv. solve in
Aquæ oz. iv. et adde
Tinct. Opii. gtt. lx.
„ Digitalis, gtt. xii. *M.* oz. ss. 4ta. quaque horâ.

14th.—Repetat medicina 2da quaque horâ.

15th.—Repetat 3tia quaque horâ.

16th.—Repetat medicina ut supra.
Tinct. Opii omittat.

17th.—Perstat ut heri.

18th.—Pains less, appetite good, vomited twice, and purged twice.

Perstat ut heri.

20th.—Enlargements still continue, but there is no pain.

Omit. Medicina.

24th.—Discharged.

I have had several cases of rheumatism under my care treated in the same manner; the largest quan-

tity in which I have yet exhibited the tartar emetic has been 16 grains in the 24 hours. It is the mode in which the Italian physicians have exhibited it so successfully for diseases of the chest, and has been introduced into French practice by Laennec in rheumatic cases. Besides its peculiar mode of operation, it is a powerful alterative, perhaps the best we could employ in that peculiar state of the system resulting from long continued chronic disease, where we have no reason to suspect internal organic derangement to any considerable degree ; and of which, perhaps, one of the most striking features is a want of susceptibility to impressions, without which many of the medicines we exhibit cannot produce their peculiar and appropriate effects.

# CASE

OF

# UTERINE DISEASE,

BY J. B. PRESTON, Esq.

*Presented May 3d,* 1828.

THE following case appears to me of importance, as it proves, that the most important affection may sometimes be overlooked, whilst our attention is exclusively directed to a single symptom, and that in an organ only sympathetically affected ; but an organ which, in this country, is not unfrequently set down as the seat of disease actually existing in other parts.

In India, and perhaps in warm countries generally, the liver will, I believe, be more frequently affected sympathetically than in colder climates, from the influence which high temperature certainly does exert over its functions, causing more or less deviation from a state of health, and consequently rendering it more liable to be affected by the diseases of other organs ; and this affection, sympathetic at first, may afterwards be converted into a state of actual disease from its mere continuance.

Mrs. —— 24 years of age, formerly rather *en bon point*, but since her arrival in India, now four years, of rather a spare habit; health, till within the last two years, good; has borne four children; has been complaining for the last two years of pain in her right side (hypochondrium), confined to one spot and greatly increased on pressure, every other part of the abdomen free; this pain is sometimes exceedingly severe, at others trifling; pain in the right shoulder; no hardness of the liver, no fulness; appetite variable; bowels generally costive; subject occasionally to great depression of spirits; sleep frequently disturbed; has undergone repeated courses of mercury, with leeching and blisters to the side, without deriving any benefit from them.

I was exceedingly puzzled with this statement, and endeavoured to explain it by supposing, that it depended upon some derangement of function in the liver, with an altered state of its sensibility, the existence of every other symptom being denied. This lady had been under my care for nearly a month, before I ascertained the real nature of her disease, which she had most carefully concealed, and which, indeed, was unsuspected by me, till foiled in every mode of treatment I had adopted. Upon more minute inquiry, I at length learned, that she had been suffering from a painful affection of the uterus for the last two years, attended with discharge. There was pain and tenderness on pressure, and fre-

quently a feeling of bearing down and dragging within the pelvis, so severe as to confine her to her couch; during these attacks, she could not retain her urine more than half an hour at a time. Her last child had been a large one, and she had commenced exerting herself almost immediately after its birth, before the uterus had attained its original size; and thus was induced probably a slight degree of prolapsus, accompanied with an inflammatory state of the organ. She had always derived relief from any purgative producing copious watery discharges, such as salts and senna; while the operation of aloëtic purgatives had always been attended with much pain.

Having thus ascertained, what I conceived to be the cause of all her suffering, viz. an inflammatory state of the uterus, I considered the pain in the side as sympathetic, and trusted for its removal to the cure of the original complaint. Three or four leeches were directed to be applied every seven or eight days within the vagina, as near the uterus as possible; this was easily effected by passing a needle and thread through the tail of the leech, and fastening it to a piece of soft rag, in which it was enveloped: the leech was thus prevented from escaping. A somewhat reduced diet was directed, with entire abstinence from beer and wine; warm fomentations daily with boiled gram enclosed in a bag; and the abdomen was directed to be covered with flannel; the state of the bowels of course to be particularly

attended to; oil to be taken as a purgative when necessary, salts and senna producing much griping, although afterwards giving relief.

On the first application of the leeches, the pain in the uterus and side left her immediately, returning however in a few days, but by no means so severe; it then shifted to the stomach, which it had never done before, and caused much suffering: the discharge ceased entirely, and did not afterwards return. The leeches have been applied about eight times, and considerable quantities of blood have been lost this way, with evident amendment of health and strength. Between each application of the leeches the pain returned, but each time milder than the preceding: the immediate relief and perfect freedom from pain that followed the application of the leeches, was most striking. For the last three weeks there has been no uneasiness, but I consider it advisable, that the same mode of treatment should be persevered in for some time longer: she is now rapidly gaining flesh and strength.

A curious circumstance in this lady's case is, that for eight, or nine months she menstruated twice monthly, and each time copiously, the symptoms being greatly increased. For the last two months this discharge has occurred but once in each month, lasting but one day, and the quantity exceedingly small. This we must attribute to the different states of the

uterus, and the local depletion by the leeches, probably preventing, or in some way altering that state of the uterus, upon which this secretion depends, perhaps fulfilling the intention of the menstrual discharge.

# CASE

OF

# PANCREATIC SARCOMA.

By J. O. WALKER, Esq.

*Presented March* 1, 1828.

I AM induced to hope, that the following case may not be altogether uninteresting to the Society, as exemplifying the great size to which tumors of this description occasionally attain, and the degree of ease and safety with which they may be removed, even in such advanced stages. In the present instance, the surgeon who was first applied to, declined to operate, on account of the magnitude of the disease; and I confess, it was in some degree the urgency and determination of the patient, that influenced me to undertake the extirpation of the tumour. The successful result may tend to remove unnecessary repugnance to the use of the knife in similar circumstances.

The subject of the case is a Mahrattah woman, about 40 years of age, the wife of Soobadar Ramjee Salookur of the pension list; and the following were the appearances which presented themselves on examination.

From the site of the left mamma hangs a large tumor, seemingly a sarcomatous enlargement of that gland; the nipple is apparent at the lower part surrounded by a dark-coloured surface about the size of the undiseased mamma; on this are several leprous-looking spots. The neck of the tumor is circular, and measures eighteen inches in girth; the greatest circumference of the body is twenty-nine inches; the smallest is twenty-three inches; its length is about eleven inches; general figure oblong, rounded; surface somewhat irregular, presenting a tuberculated appearance; the tumor feels firm, hard, and fleshy, has no fluctuation, and gives no pain on handling. The skin is unbroken, save at one point, where an opening, lately made by a native practitioner, has produced a deep round ulcer with ragged edges, which discharges an offensive sanies, and causes much uneasiness to the patient. She can give but a very indistinct account of the origin and progress of the disease, but says it is at least six years since she first observed it; she suffered little pain in the tumor till lately. Her general health is not much impaired; she has slight cough, but no pain in the chest; the glands in the axilla are not affected; the connections of the tumor admit of its being moved to a trifling extent from side to side.

The poor woman was extremely anxious to have the tumor extirpated, as her only chance of avoid-

ing protracted suffering and a miserable death; and, after explaining to her the danger of so severe an operation, I proceeded to perform it on the 10th May, assisted by Doctors Taylor and Robson.

The excision was commenced from the inner and upper side of the base, and continued by cautious dissection to the centre; the tumor was found to be attached to the subjacent structure and ribs, chiefly by numerous tendinous bands, which, permitting a certain degree of lateral motion, would yet not allow of its being much raised from the surface below; this, together with the extent of the base, (unequally concave and adapted to the shape of the thorax, with a considerable hollow in its centre,) served to increase the difficulty of securing the arteries divided at this point of the operation, and it became necessary to alter the position of the patient, and accomplish the separation of the remaining half by dissecting from the opposite side of the base. The removal of the enormous mass was finally completed by the division of a strong ligamentous band, extending down the centre of the attachment. Towards the axilla, the tumor was in immediate connection with the fibres of the pectoral muscle; more anteriorly, its pressure had reduced that muscle to a confused mass of condensed cellular substance, on which the tumor rested, and which its suspensory bands of fascia traversed in all directions.

The loss of blood during the operation was not very great, the vessels being successively tied as they were divided; they proved of less consequence than was expected from the size, and standing of the disease: in all, six ligatures were applied. This precaution, and the necessity of very guarded dissection in so confined and deep a situation, under the broad base of the tumor, prolonged the operation considerably; but the patient, being recruited with wine and water, bore it very well. The skin being in most parts adherent to the tumor, and of a diseased appearance, I was unable to save a portion adequate to covering so large an exposed surface; the edges of the wound were however approximated by adhesive straps, and one or two stitches put in towards the axilla.

The excised mass was found to weigh ten pounds, five ounces, (lbs. 10 : 5); the surface by which it adhered to the chest was irregularly concave, with smooth rounded eminences, intersected by winding depressions, and a deep sulcus through the middle, from which proceeded the principal ligamentous band of very considerable breadth and thickness. The tumor had every appearance of being entire, and fully removed. When cut into, it was found to resemble very closely in appearance the pancreatic sarcoma of Abernethy; but the whole was of a much firmer texture than the pancreas, and approaching to a cartilaginous and ligamentous structure.

For some days after the operation a good deal of constitutional irritation prevailed, marked by thirst and sharp pulse; slight cough, with uneasiness in the chest, twitching of the face, head, and neck, and constant burning and throbbing sensations in the wound. The straps of plaster were therefore discontinued, simple dressings applied, and the edges of the wound supported by compresses and bandage; alterative doses of calomel and opium, with saline diaphoretic and laxative mixtures, removed the constitutional symptoms, and the case went on favorably till the ninth day, when, in consequence of indulging in improper diet, the patient had an attack of fever, with much derangement of the biliary and digestive organs. During the few days this continued, the wound rather retrograded; but nothing afterwards interfered with the progress of the cure, though, from the circumstances detailed, cicatrization was rendered rather tedious. The contraction consequent on this process, however, has covered with old integuments the whole surface of the wound, except a space of about two inches in the middle, where new skin has formed over the granulations.

July 10th, 1826.—The patient and her husband have just been with me, to make their acknowledgments before her return to their native village. The skin over the wound is sound and firm, and the cure apparently as perfect as could be wished.

January 12th, 1828.—I have this day seen the husband of the patient, who informs me that she continues to enjoy good health, is perfectly free from all uneasiness in the part operated on, and that there is not the least appearance of a return of the disease.

# ON CHOLERA MORBUS,

IN

# HIS MAJESTY'S 14TH REGT. BERHAMPORE.

By J. MOUAT, Esq. M. D.

*Presented May 3, 1828.*

THESE sudden and severe visitations of sickness which unhappily we so frequently witness amongst European troops in this country, so completely engage the attention of the medical attendant, that he can but ill spare time to detail their history. With this claim for indulgence, allow me to give a hasty sketch of the cholera, as it has just appeared in H. M.'s 14th Foot.

The arrival of His Majesty's 59th Foot at Calcutta, on the 25th January 1828, relieved our corps, and we commenced our march the same morning, and on the 11th February arrived at this station*. We had only seven slight cases of disease, since our arrival, so healthy and efficient had we become by the march. The sick, to the amount of 48 men, had embarked on boats, the 24th January,

* Berhampore.

under Assistant Surgeon Stewart, and had arrived a few days before the regiment. Two men died on the river; and 32 cases were handed over to me the day we marched into cantonments, at which period, though our corps was 850 strong, we had but 39 cases in hospital.

The marches from the presidency were short, easy, and pleasant. We understood that the 59th Foot had had several cases of cholera at Rhana Ghaut; and in consequence Colonel McCombe, C. B. kindly met my views of avoiding the spots where this malady had afflicted that corps. On the march from Calcutta we had no case of cholera, and happy should I feel could this report be concluded with a similar observation.

I have now witnessed the attacks of this oriental scourge for upwards of 10 years, and though I have studied it, watched its invasions, contemplated its progress, endeavoured to trace its causes, as well as to alleviate or mitigate its symptoms, yet I find it still the same, inscrutable, inexplicable, and intractable disease, as when I first arrived in 1817 in this country. These observations have been elicited by the recent appearance of this disease. On the 14th instant, (March,) a man was attacked on the Bazar Guard with cholera. He came in with the disease fully developed, and when the pulse, the eyes, the spasms, the evacuations, and the skin, indicated it of the worst species. His life with difficulty was saved.

| | | |
|---|---|---|
| On the | 15th were admitted . . | 2 |
| „ | 16th ditto, . . . . . | 9 |
| „ | 17th ditto, . . . . . | 10 |
| „ | 18th ditto, . . . . . | 11 |
| „ | 19th ditto, . . . . . | 6 |
| „ | 20th ditto, . . . . . | 5 |
| „ | 21st ditto, . . . . . | 4 |
| „ | 22d ditto, . . . . . | 9 |
| „ | 23d ditto, . . . . . | 6 |
| „ | 24th ditto, . . . . . | 8 |
| „ | 25th ditto, . . . . . | 1 |
| „ | 26th ditto, . . . . . | 3 |
| „ | 27th ditto, . . . . . | 1 |
| „ | 28th ditto, . . . . . | 8 |
| „ | 29th ditto, . . . . . | 7 |
| „ | 30th ditto, . . . . . | 2 |
| „ | 31st ditto, . . . . . | 1 |
| | | 93 |

Of whom 20 died.

The sudden appearance of this disease, in so fatal a form, as may naturally be supposed, soon excited alarm and apprehension.

The admission of so many cases has presented the disease in every shape and variety. It has begun in some with lowness, giddiness, lassitude, faintness, bad taste in the mouth, chills, clammy damp skin, small pulse, nausea, anorexia, and vomiting; in others we have had colicky pains, uneasiness, oppression or pain at præcordia: sometimes heat or burning, and anxiety or distress of countenance, heavy, muddy, or

blood-shot eyes, and with these have been vomiting, purging, exhaustion, and the spasmodic contraction of the muscles of the extremities, advancing to the trunk; occasionally the individual, from being quite well or after a hearty meal, has suddenly had vomiting, cramps, and sinking of the vital power, a heavy, hurried, and laborious respiration, loss of pulse, heat, collapse, &c.; others again have had several stools, with pain in the belly, succeeded by vomiting, with cramps, cold sweats, loss of voice, &c. In some again there has been scarcely any vomiting, or purging, or spasms; yet the oppression, the dyspnœa, the cold sweats, the sinking, &c. have been alarming and sudden; some whilst doing their duty have felt giddy, faint, sick by instantaneous vomiting and purging, with sinking, cramps, cold sweats, &c.

The cases have been in general more or less characterized by purging, vomiting, pain or heat at præcordia, anxiety, spasms, restlessness, jactitation, oppression, cold, damp, clammy skin, collapse, failure of the pulse, shrivelled extremities, and urgent thirst.—One lad, a patient in hospital with bubo, had purging a few times, with griping, succeeded by some bilious vomiting, when the pulse sank, the extremities became cold, the eye heavy or muddy, sinking and every indication of speedy dissolution at 10 o'clock; at 8 he ate his breakfast, and felt quite well. Some have staid out, till the disease had been fully developed, and yet recovered; whilst others again have been brought into hospital in the

earliest stage, still have fallen a sacrifice to the malady.

The disease has presented some peculiarities and anomalies, which I shall endeavour to detail.

In former attacks of cholera, venesection I ever found the most speedy and efficacious remedy with Europeans, and when properly timed the flow of blood has relieved the vomiting, the spasms, the restlessness and jactitation, with the great majority. Venesection in the present instance has destroyed the powers of life, sunk the patients, and induced spasms and cold sweats! so that where the pulse was feeble, the eyes languid, skin clammy, voice feeble or changed, countenance distressed or shrunk, heat below the natural standard, we have been obliged to refrain from bleeding. In no instance, with any of the above symptoms, however slight or however early in the disease, did the flow of blood either rouse the system, induce reaction, or relieve the complaint. The blood either does not flow or trickles from the vein in the usual cases of cholera. Here, however, it has generally flowed freely; yet, instead of the pulse rising, faintness, exhaustion, cold sweats, with increase of vomiting and cramps, have obliged us to have recourse to stimulants to rouse the vital energies. How are we to explain this anomaly in the disease? Has it again appeared with its original epidemic severity, or have the constitutional habits of the men, or the nature of the season, influenced the malady?

From what I have seen amongst the natives, as well as the Europeans, the disease has been characterized with peculiar and early failure of the vital powers, and, so far, similar to the visitation, as it first appeared epidemically. The season no doubt has materially contributed by the very early and sudden setting in of unusually hot weather for the month of March, which could not fail to affect men who have been so long in the country, and consequently debilitated by long residence, and habits of intemperance.

| *No. of Years in India.* | *Number admitted.* | *Number died.* |
|---|---|---|
| 1½ | 6 | 3 |
| 4 | 4 | 0 |
| 5 | 9 | 0 |
| 6 | 2 | 1 |
| 9 | 9 | 2 |
| 10 | 11 | 0 |
| 11 | 6 | 2 |
| 12 | 6 | 1 |
| 13 | 5 | 2 |
| 14 | 8 | 0 |
| 15 | 3 | 0 |
| 16 | 2 | 0 |
| 17 | 2 | 0 |
| 18 | 2 | 1 |
| 19 | 4 | 4 |
| 20 | 9 | 4 |
| 21 | 3 | 0 |
| 7 | 1 | 0 |
| 8 | 1 | 0 |
| | 93 | 20 |

However some few were strong, healthy, sober young men.

In some the vomiting and purging concurred, in others alternated with each other, with or without cramps. The purging sometimes seemed to excite the vomiting, and this again the cramps. In this case, by checking the purging with anodyne enemas, the stomach became less irritable; and the quieter the individual remained, the less likely were the cramps to return.

The matters ejected from the mouth have been very various; at first the food or drink, then clear, watery fluid, at times yellow, green, or muddy, and very bitter. Sometimes it has been like *congee* water; and this has generally characterized the worst cases. But several with bilious vomiting have terminated fatally. In many cases the matters vomited and dejected, as well as the perspiration, have had a peculiar odor or smell, so characteristic of cholera.

The stools have presented a great variety of appearance. At first feculent, then watery, or muddy, green, black, and even white, or similar to rice water. In those who have recovered, dark, black, pitchy, fetid, and even reddish evacuations have been frequent; or they have been annoyed with a bilious diarrhœa.

The general depression, with the failure of the heart and arteries, was early, but by no means characteristic of the violence of the previous symptoms. Very gentle purging, slight vomiting, and occasional twitches of the muscles of the feet and legs have been almost simultaneous with, or rapidly followed by, a cold shrunk surface, clammy sweats, ghastly countenance, sunk, fixed, glassy, bloodshot eyes, livid lips, contracted fingers, blue nails, hands and feet puckered into folds, dark blue tongue, and feeble or indistinct articulations.

The prostration of strength in every one was a most marked feature of this disease. In several reaction took place, in others again partially, or the heat and circulation were never restored. In three or four cases, the depression was the principal feature of the complaint on admission to hospital, as the slight vomiting and purging which they had, could scarcely be deemed a disease, though the eventual occurrence of cramps, the nature of the evacuations, and the urgent thirst, but too fully proved it to have been cholera.

The thirst in every case was most urgent, insatiable, and intolerable, often with pain, anguish, or sensation of burning at the epigastrium or stomach. Nothing served to quench it; rinsing the mouth with a little acid drink, or sucking a slice of lemon gave most relief. A copious draught seldom failed

to excite vomiting, and this the spasms, so that the most painful duty of the attendants was a refusal to the entreaties and prayers of the patient for drink. The state of collapse sometimes continued long, but recovery seldom took place if it had lasted more than four hours. The languid, heavy, dull eye was most peculiar, and marked. The adnata in many was turgid, and vascular, the cornea glassy, the eye fixed or sometimes partaking of the spasms, and exhibiting strabismus. One man who lingered long ere he died had absorption of the left cornea. In few were the spasms so violent as I had previously witnessed in this disease. They were principally confined to the toes, soles of the feet, calves of the legs, thighs, and hips; seldom the trunk, and rarely the superior extremities. In two, the muscles of the neck and chest were affected, and one of these died. Occasionally the diaphragm, and sometimes the muscles of the abdomen were seized with spasms. The spasms being so light in so fatal a form of the disease, may be referred to the great depression and early sinking of the vital powers, which has peculiarly marked the present epidemic in all its stages.

The pulse was mostly slow, 50, 55, and 60 to 80 in a minute, though in some cases scarcely affected till the disease had been fully formed, and then it suddenly ceased to vibrate. It never rose to 100 before reaction had taken place, viz. after the vomiting, purging, and cramps had ceased. The secretions were

greatly affected, as appeared by the clammy state of the tongue and mouth, and scantiness of urine, with the dull, glassy, and tearless state of the eyes; skin damp, cold, or covered with a clammy sweat. One or two seemed deaf, or heard worse than usual; and in no case did this sense appear more acute.

The functions of the mind were little or at all affected to the last; and so long as articulation remained, the answers were pertinent and collected. This was particularly observed in those who, after death, exhibited great congestion in the vessels and sinuses of the head, as well as effusion in the ventricles. Could the latter have taken place in articulo mortis? At the first onset much alarm and anxiety were apparent; but this during the progress of the disease wore off, or rather the individuals were insensible or careless as to the result; though when questioned as to how they felt, the answer was very constantly, "I am very bad," or, "I feel very ill," or, as the disease remitted, "I feel better," though in some cases, this calm was merely that of becoming comatose and insensible, just before sinking, and resigning their last breath.

Some few struggled strongly against the disease, but these were very few, and some scarcely made an attempt to rally; and, as I have observed, the state of collapse was early and appalling.

Relapses have not taken place; unless in two or three who promised for some hours to recover, but have had a slight return of the vomiting and purging, and have immediately sunk. Three who were convalescent became delirious and feverish, and two died; yet no marks of disease in the brain on dissection could be traced. In many the attacks came on without previous warning. But in general depression, faintness, lowness of spirits, bad taste in the mouth, giddiness, colicky pains in the belly, with nausea, anorexia, loss of strength and appetite, feeble pulse, pale surface, uneasiness at the epigastrium, were the principal premonitory symptoms. In many cases the individual was too ill to give any account of himself; and one could only collect from his comrades that he had vomiting, purging, &c. Hence the cases themselves in many instances could be very imperfectly taken: and it was only after they became convalescent, that any thing like a collected history of their case could be elicited. Even then few could refer their attacks to any particular cause, though some imputed it to a hearty meal, others to drinking liquor, some to taking a draught of cold water, and others to exposure to the sun, or the chilly damp of the night air. Some were old worn out men, debilitated by irregularity and long residence in India; others were sober, young, and temperate, and characterized as the best and most orderly soldiers in the regiment. It has been observed, that none of the *very worst* characters

have fallen a sacrifice to the disease, and few even to its attacks.

The vomiting, purging, or cramps becoming slighter, or returning at more distant intervals, or ceasing entirely, with gentle warmth on the surface, soft pulse, and a disposition to sleep, with a warm perspiration on the forehead, neck, and chest, generally indicated recovery, and always took place, in those who convalesced. In some the vomiting and the cramps returned for a long time, and in many cases purging, with either green, black, muddy, red, bilious, or yellow stools was its sequela. In some the recovery was rapid, in others slow and tardy; and where the patients relapsed they suddenly sank, without any apparent struggle, or affording time to try the usual remedies to rouse the system.

With so many years' experience,—with so many able reports and no less able works on this disease,—with such ample and such favorable opportunities of studying and contemplating its ravages,—the origin and nature of this pestilence still remain enveloped in doubt and obscurity. It suddenly appears, commits its work of death, and then as unexpectedly vanishes. Sudden variations of temperature, irregularities of living, bad food, pernicious spirits, exposure to the sun and to the damps of the nights, and all other debilitating sources, ample experience lead us to believe are both predis-

posing and exciting causes of cholera. But these variations of temperature, these irregularities of living, these habits of intemperance, with bad food, pernicious stimulants, exposure to heat, cold, &c. do not *at all times* excite this malady: so far it is guided by laws peculiar to itself.

Why should the soldiers of His Majesty's 14th and 47th Regiments of Foot, native servants, and the inhabitants of the bazar, be persecuted by this scourge, and not the officers themselves, the gentlemen residents, or the sepoys assembled in the same cantonment, and promiscuously mixed together? Why so marked and peculiar a predilection in its attacks? No laws by which contagious or epidemic diseases are usually guided can explain this anomaly. We shall have all variations of temperature, every age, constitution, and habit in a European corps, every species of irregularity and excess, with exposure, &c. and yet no cases of cholera amongst individuals thus situated. When lo! suddenly and unexpectedly the disease raises its hydra head, creates alarm and consternation; but, like "the baseless fabric of a vision," it is vain to pursue the phantom. Men are constantly and violently purged for hours, nay days, without cholera: get drunk and vomit with the most violent retching and straining; still no cholera succeeds. Whereas at another time, every purging, every sickness at the stomach, and nearly all the endemics of the season appear converted into cholera in all its forms. Time and experience may explain its laws

and pathology, elucidate its phenomena, and the lights of science guide to some certain and efficacious means of averting its progress and combating its attacks.

On the 11th February, the 14th Foot had but 36 cases of disease: on the 1st March 53, and yet by the end of the month, 94 cases in hospital, with 94 admissions of cholera alone. The weather, it is true, set in unusually hot for March; but will this explain why this particular affection should have taken place, and created so awful a mortality, or why the prevailing endemics should have merged into this inexplicable disease? From this we may collect, that the remote, predisposing, and occasional exciting causes may be such as I have enumerated; yet as all these often occur, and are present without cholera, we must come to the conclusion, that our knowledge regarding it is still in its infancy, that we have yet much to learn, and that the theories of the schools or the dogmas of the learned avail little in elucidating its appearance, or explaining its phenomena.

Let us trace back this disease for the last few months.

In my observation for November 1827, I state: "During the early part of the month, the cool westerly winds seemed to have a most beneficial effect upon the sick. However, towards the latter end of the

month, the weather became closer and the wind variable, which has had a bad effect upon the fever cases, several convalescents having relapsed, and some intermittent cases having become remittent, together with six cases of cholera, three of whom came in cold, collapsed, without pulsation, and in fact in the last and worst stage of cholera: two have died, and the other is still in a precarious state. He subsequently sank." In December we had no cholera, yet on the 14th January 1828, I report: "Within the short period of seven days, it will be observed, that a most rapid increase in the sick of the regiment has taken place, and this too, at the healthiest season of the year. It has been observed, that when we discover the cause, we have half cured the patient. Would indeed this were always the case! Here alas! we know the source, but no human exertions, I fear, will remedy the evil. A few days ago, a sum of 15,000 rupees was paid to the men as commutation for clothing; and the result has been a free and baneful indulgence in all those pleasures, which in this country are ever the source of disease. Most of the sick admitted have either been intoxicated, or laboring under the effects of drinking; and two have already fallen a sacrifice to our Indian scourge, the cholera, who had previously, and, indeed, up to the moment of the fatal attack, been indulging at the canteen."

Thus it appears we got from the 26th to the 30th November 1827, 6 cases of cholera, of whom 3 died.

In December none. In January 1828, from the 6th to the 19th, 7 cases, of whom 2 died. In February, from the 11th to 22d, 4 cases, and no death. In March, from 14th to 31st, 94 cases, with 20 deaths. Surely this short detail affords ample scope for comment and reflection. Such as more particularly interest the medical inquirer, I have already endeavoured, though briefly, to detail in this report; and I have no wish to enter into theoretical discussion, as to the primary source or proximate cause of a disease, which I have already so often declared to be beyond my comprehension.

None of the native attendants at the hospital have been attacked; though in the immediate vicinity of the Bazar, several daily. Out of 150 individual patients in the hospital, one only has had this complaint, viz. Mr. Sylvester, the assistant apothecary; so that we have no adequate grounds to deem it for a moment contagious.

Three women have been seized with it in its severest form; and one, a very drunken bad character, died: the others are well. Likewise two children, both of whom died; but I did not see them, till the disease had nearly run its course.

On a former occasion I observed, that the treatment, whatever might be our speculations, seemed directed to one point, to restore the balance of the circulation, and relieve urgent symptoms.

I had in former attacks found venesection in the earlier stages a most efficacious remedy. In the present attack, in very few cases did it relieve or mitigate the symptoms. In several where the pulse was good, and the flow of blood free, yet sudden sinking was induced, cold sweats broke forth, and general collapse and spasms speedily hurried the individual into a hopeless state. In cases where the pulse was hard, the face flushed, the spasms strong, the pains violent, and the screams of the patient loud, bleeding did most decidedly benefit. But we had few such; and the failure of the vital powers in some seemed coeval with the purging, and before either the vomiting or the cramps. In these cases it did harm.

Calomel in scr. i. doses with opium or Tinct. Opii, certainly restrained the vomiting, better than any other medicine. Magnesia also in this respect has proved very useful, and seemed to benefit greatly the burning or anguish at the scrobiculus cordis.

A large blister from the centre of the sternum to the umbilicus tended greatly to rouse the system; as likewise blisters to the spine.

Laudanum, ether, ammonia, and camphor were the principal stimuli given internally, with hot brandy and sago, which latter appeared the most efficient, permanent, and universal stimulus of any. Bottles of hot water to the sides, feet, &c. were never omitted, and hand frictions of the arms, legs, thighs,

&c. did more to restore the heat and circulation than any thing else. Anodyne enemas, by restraining the purging, proved of great utility.

The warm bath exhausted, without rousing the system, and in no case did good. Few had strength to go through the fatigue in the stage it could benefit, and the subsequent failing of the strength, pulse, and heat, obliged us to abandon the remedy altogether.

Leeches to the head and epigastrium removed local determinations of blood to those parts.

Mild purgatives to clear out the intestines, and small doses of calomel and antimony, towards the termination of the disease, were useful.

Very copious draughts of very hot water were tried, but without benefit.

On dissection, in many cases very little disease was apparent. In some much congestion and vascularity ; in others very little. Every case was minutely examined, and, with the exception of the vessels of the head, brain, lungs, liver, stomach, and intestines, appearing turgid and sometimes loaded with blood, there was nothing observed worthy of record. The gall bladder sometimes distended, at others empty : the ducts in some cases pervious, in others contracted.

The matters in the stomach and intestines were similar to that which during life had been ejected. The white, thick, jelly-like mucus mentioned by Mr. Annesley was observed in three or four cases.

The sudden admission at all hours and rapid accumulation of so many urgent cases, each requiring so much attendance and care, harassed and distressed the hospital establishment beyond measure. It was found advisable to pitch a tent at the hospital, and a medical officer to remain there at night. This irksome duty has been most cheerfully performed by Assistant Surgeon Battersby.

Herewith I transmit an abstract of the cases of 94 men, which, imperfect as it is, will perhaps give a better insight into the nature of the disease, than my statement; and at the same time, elucidate and confirm these observations.

---

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 31st March 1828.*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| Richard Evans, | 14th 2 A. M. | 7 A. M. | Purging, vomiting, and pain across the belly, pulse scarcely to be felt, features collapsed, spasms and cramps, and sinking. | Calomel in scruple doses with laudanum, frictions, blister to the scrobiculus cordis, magnesia for the vomiting, bled to oz. xiv. effervescent draughts, afterwards purgatives. | .. .. | Convalescent. |
| James Gower, | 15th 8 P. M. | 11 P. M. | Severe vomiting, purging, of watery fluid, cramps in legs, oppression, very low, countenance sunk, extremities cold, voice faltering, pulse not to be felt. | Calomel in scruple doses with laudanum, blister to the abdomen, magnesia for the vomiting, frictions, camphor, ammonia and opium pills, warm brandy and sago. | 16th Mar. | |
| James Murphy, | 15th 1 A. M. | 6 A. M. | Purging, vomiting with cramps, pulse feeble, extremities cold, restlessness and thirst, great agony and distress, stools watery. | Calomel in scruple doses with laudanum, was bled to oz. xxvi. magnesia for the vomiting, frictions, afterwards small doses of calomel and antimony. | .. .. | Discharged well. |
| George Long, | 16th 1 P. M. | 6 P. M. | Griping, pain in belly and epigastrium, anxiety, oppression, restlessness, nausea, sickness, and purging, pulse feeble, also vomiting of watery fluid. | Bled twice, calomel in large doses, afterwards calomel, antimony, and purgatives. | .. .. | Discharged well. |
| Thomas Hughes, | 16th 5 A. M. | 8 A. M. | Seized with giddiness, vomiting, purging and griping, extremities cold, eyes sunk, no pulse, voice scarcely audible, sinking. | Large doses of calomel with laudanum, blister to the abdomen, frictions, warm brandy and sago. | 16th Mar. | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Joseph Clarke, | 16th 12 P. M. | 5 P. M. | Severe vomiting and purging, heaviness at the stomach, pulse quick and feeble, sinking. | Bled to oz. xx. large doses of calomel, magnesia for the vomiting, fomentations, afterwards purgatives. | | Discharged well. |
| George Deane, | 16th 2 P. M. | 3 P. M. | Severe vomiting and purging, pain in the scrobiculus cordis, restlessness, pulse nearly gone, spasms, eyes sunk, extremities cold, sinking. | Bled to oz xiv. calomel in scruple doses, with laudanum, blister to the chest, magnesia for the vomiting, frictions, warm brandy and sago. | 16th Mar. | |
| Thomas Purcell, | 16th 6 A. M. | 8 P. M. | Vomiting and purging, giddiness in head, quite exhausted, pulse feeble, no cramps, eyes sunk. | Bled to oz. xx. large doses of calomel, afterwards purgatives. | .. .. | Discharged well. |
| Joseph Kettridge, | 16th 5 P. M. | 8 P. M. | Purging, vomiting, and pain in the right side, severe cramps in his legs, pulse quick but small, great restlessness and thirst. | Bled to oz. xx. large doses of calomel with laudanum, blister to the epigastrium, frictions, anodyne enemas, afterwards small doses of calomel and antimony, warm sago and brandy. | | Doing well, convalescent. |
| William Hollis, | 16th 8 P. M. | 11 P. M. | Pain about the episgastrium, nausea, pulse quick, countenance flushed, severe vomiting and purging, no cramps. | Bled twice, calomel in scruple doses, blister to the epigastrium, magnesia for the vomiting, afterwards purgatives. | .. .. | Discharged well. |
| John Herd, | 16th 10 P. M. | 11 P. M. | Suddenly seized with griping, vomiting, and purging, pain about the epigastrium, cramps in his legs, pulse quick but small, skin cold, eyes sunk. | Bled to oz. xx. calomel in scruple doses with laudanum, blister to the epigastrium, magnesia for the vomiting, anodyne enemas, afterwards small doses of calomel and antimony, purgatives. | .. .. | Watery purging continued for several days, with great debility and swelling of feet, convalescent. |
| James Edwards, | 16th 10 A. M. | 2 P. M. | Vomiting and purging, pulse feeble, restlessness, extremities cold, sinking, oppression, countenance sunk. | Bled to oz. xiv. calomel in scruple doses with laudanum, magnesia for the vomiting, calomel and antimony in small doses, sago and wine. | 17th Mar. | |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 31st March 1828, (continued)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| John Shirley, ..... | 17th 2 A. M. | 5 A. M. | Vomiting, purging, cramps, cold sweats, no pulse, much sunk, looks haggard, clammy feel of skin, pain at epigastrium and belly. | Calomel in scruple doses with laudanum, hot frictions, blister to the epigastrium, warm baths, magnesia for the vomiting, sago and brandy, afterwards calomel, antimony, and purgatives. | .. .. | Discharged well. |
| John Casey, ..... | 17th 10 P. M. | 11 P. M. | Seized with pain in epigastrium, vomiting but no purging, pulse quick, skin hot, cramps occasionally. | Bled to oz. xx. calomel in scruple doses, blister to the epigastrium, magnesia for the vomiting, friction, afterwards small doses of calomel, antimony, and purgatives. | .. .. | Convalescent. |
| Henry Cavanaugh, .. | 17th 5 A. M. | 8 A. M. | Vomiting and purging, pulse feeble, skin hot, countenance a little altered, and great thirst. | Bled to oz. xxx. scruple doses of calomel, afterwards purgatives. | .. .. | Discharged well. |
| George Baxter, ..... | 17th 7 A. M. | 12 A. M. | Severe pain in stomach with vomiting and purging, cramps in his legs, pulse small and feeble, sinking, eyes sunk. | Bled to oz. xx. calomel in scruple doses with laudanum, frictions, blister to the epigastrium, warm brandy and sago. | 17th Mar. | |
| John Butterworth, .. | 17th 12 A. M. | 2 P. M. | Purging, vomiting, pain in abdomen, extremities cold, pulse scarcely perceptible, countenance sunk, voice feeble. | Scruple doses of calomel with laudanum, blister to the chest, frictions, warm brandy and sago. | 17th Mar. | Had a severe attack in Fort William. |
| Henry Moore, ..... | 17th 11 A. M. | 2 P. M. | Pain in stomach, anxiety, sinking, griping, purging and vomiting, pulse quick. | Bled to oz. xx. calomel in large doses, magnesia for the vomiting, afterwards calomel, antimony, and purgatives. | .. .. | Discharged well. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Christ. Travesick, | 17th 4 P. M. | 5 P. M. | Bilious vomiting, frequent watery stools, anxious, restless, faint, pain at the epigastrium, great thirst, pulse quick, and sinking fast. | Bled to oz. xx. scruple doses of calomel with laudanum, afterwards calomel, antimony, and purgatives. | .. .. | Discharged well. |
| Thomas Carrotts, | 17th 11 A. M. | 8 P. M. | Vomiting, cramps, pulse quick and full, skin hot, pain in abdomen, chest, and head. | Bled to oz. xx. scruple doses of calomel, blister to the neck, and purgatives. | .. .. | Discharged well. |
| William Moore, | 17th 1 A. M. | 8 P. M. | Seized with severe pain in stomach, violent vomiting and purging, sinking, hands cold, pulse not to be felt, cramps of neck and upper extremities. | Bled to oz. xx. scruple doses of calomel with laudanum, blister to the breast, frictions, warm sago and brandy. | 21st Mar. | |
| Thomas Dodson, | 17th 10 A. M. | 7 P. M. | Pain at the epigastrium, very low and sunk, nausea, (had cholera at Muttra,) pulse full. | Bled three times, calomel in large doses, magnesia for the vomiting, small doses of calomel, antimony, and purgatives. | .. .. | Discharged well. |
| George Wyatt, | 18th 1 A. M. | 4 A. M. | Purging and vomiting, pain in stomach, cramps, pulse quick but feeble, countenance flushed. | Bled to oz. xxx. scruple doses of calomel, magnesia for the vomiting. | .. .. | Discharged well. |
| James Gray, | 18th 5 A. M. | 7 A. M. | Griping, pain in belly, purging with vomiting, cramps at epigastrium, stools watery, pulse full, anxious, green vomiting, &c. | Bled to ox. xxx. scruple doses of calomel with a grain of opium, magnesia for the vomiting, afterwards calomel, antimony in small doses, with purgatives. | .. .. | Discharged well. |
| Edward Rossee, | 18th 7 A. M. | 1 P. M. | Griping, nausea, pain in head, watery stools, anxiety and restlessness, pulse quick, sinking. | Bled to oz. xxx. scr. doses of cal. fomentations, magnesia for the vomiting, afterwards purgatives. | .. .. | Discharged well. |
| John Davis, | 18th 5 A. M. | 11 A. M. | Purging and severe vomiting of watery fluid, pain in belly, extremities cold, great restlessness, cramps, countenance sunk, is apparently sinking fast, pulse not to be felt. | Calomel in scruple doses with opium, magnesia for the vomiting, frictions, blister to the abdomen, stimulating draughts, brandy and sago. | 18th Mar. | |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 31st March 1828, (continued.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| George Lack, ..... | 18th 1 P. M. | 3 P. M. | Vomiting and purging, great pain in belly, restlessness, pulse feeble, thirsty, faintness, anxiety, distress, too ill to give an account of himself. | Bled twice, scruple doses of calomel with laudanum, blister to the chest, frictions, afterwards calomel, antimony in small doses, with purgatives. | .. .. | Discharged well. |
| James Lawson, ..... | 18th 1 P. M. | 3 P. M. | Pain in head and stomach, vomiting with restlessness, no purging, pulse quick, anxiety and distress of countenance. | Bled three times, large doses of calomel, afterwards calomel and antimony in small doses, with purgatives, fomentations. | .. .. | Convalescent. |
| John Beasley, ..... | 18th 5 P. M. | 7 P. M. | Pain about the stomach, with violent purging, vomiting of watery fluid, pulse quick, cold sweats, countenance sunk. | Bled to oz. xxv. large doses of calomel with laudanum, blister to the breast, frictions, magnesia for the vomiting, other laudanum and ammonia draughts. | 21st Mar. | |
| Thomas Radsford, .. | 18th 5 P. M. | 7 P. M. | Pain in stomach with vomiting, and purging, pulse quick, skin hot. | Bled to oz. xxx. large doses of calomel, afterwards purgatives. | .. .. | Discharged well. |
| William Topham, .... | 18th 2 P. M. | 8 P. M. | Pain in stomach with vomiting, pulse quick, skin warm. | Scruple doses of calomel, bled to oz. xx. afterwards purgatives. | .. .. | Discharged well. |
| George Aldbury, ..... | 18th 5 P. M. | 10 P. M. | Pain in abdomen with vomiting, pulse quick, skin hot, violent cramps in legs, great thirst, agonizing tremors. | Bled twice, large doses of calomel with laudanum, magnesia for the vomiting, blister to the breast, warm brandy and sago, afterwards small doses of calomel and antimony, with purgatives. | .. .. | Drunk, exposed to the sun, absent from cantonment all day, bled to oz. xl. with immediate relief. |
| William Lepper, ..... | 18th 8 P. M. | 12 P M. | Pain in belly and epigastrium with faintness, seems very low, pulse quick, tongue foul, great anxiety. | Bled to oz. xx. purgatives. | .. .. | Discharged well. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Samuel Marvin, | 19th 11 A. M. | 2 P. M. | Vomiting and purging, pain at the epigastrium, pulse quick, looks anxious and restless, cramps, feet cold, collapsed, sinking, oppression at pericardium. | Bled to oz. xxx. large doses of calomel, magnesia for the vomiting, blister to the scrobiculus cordis, frictions, warm brandy and sago. | 20th Mar. | | |
| John McCrea, | 19th 11 A. M. | 1 P. M. | Pain in stomach, nausea, pulse quick, skin warm, seems very uneasy, great thirst. | Bled to oz. xv. scruple doses of calomel, afterwards calomel and antimony, ipecacuanha enemas, and purgatives. | .. | .. | Discharged we.. |
| Michael Brady, | 19th 1 P. M. | 2 P. M. | Pain in stomach with vomiting, pulse quick, skin warm, face flushed, great thirst. | Bled twice, scruple doses of calomel with laudanum, magnesia for the vomiting, afterwards calomel and antimony, and blister to the neck. | .. | .. | Doing well. |
| Anthony Murray, | 19th ½5 P. M. | 6 P. M. | Vomiting and purging, restless and very anxious, pain in epigastrium, great thirst, pulse feeble, cramps of legs and loins, vomiting of white fluid, too ill to give an account of himself. | Scruple doses of calomel with laudanum, blister to the scrobiculus cordis, magnesia for the vomiting, frictions, warm sago and brandy, afterwards small doses of calomel, antimony, and purgatives. | .. | .. | Discharged well. |
| John Howe, | 19th 8 P. M. | 9 P. M. | Pain in chest and limbs, purging, great restlessness, pulse quick, distress, retching, pain, and oppression came on suddenly with giddiness and faintness. | Calomel in scruple doses, magnesia for the vomiting, anodyne enemas, afterwards small doses of calomel and antimony with purgatives. | .. | .. | Discharged well. |
| Edward Moore, | 19th 10 P. M. | 12 P. M. | Giddiness, vomiting green bitter fluid, pain in epigastrium, pulse feeble, tongue foul, no purging, great thirst. | Large doses of calomel, magnesia to prevent vomiting, afterwards purgatives. | .. | .. | Discharged well. |
| James Watts, | 20th. | ½2 P. M. | Vomiting of watery bilious fluid, purging, pain in pericardium and belly, restlessness, anxious and faint, sinking, pulse feeble. | Scruple doses of calomel, blister to the scrobiculus cordis, magnesia for the vomiting, frictions, afterwards purgatives. | .. | .. | Discharged well. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 4th to 31st March, 1828, (continued.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| Thomas Gray, ..... | 20th 5 A. M. | 6 P. M. | Vomiting of green, bitter, bilious, watery fluid, purging and pain at pericardium and belly, slight cramps, oppression, collapsed pulse, feeble, much sunk. | Calomel in scruple doses with opium, blister to the chest, magnesia for the vomiting, afterwards small doses of calomel, antimony, and purgative. | .. .. | Discharged well. |
| John Whitehead, .... | 20th ½ 1 A. M. | 11 A. M. | Vomiting and purging, giddiness in head, cramps in limbs, pain in stomach, low and distressed, pulse nearly gone. | Calomel in scruple doses with laudanum, magnesia for the vomiting, blister to the stomach, frictions, afterwards calomel, antimony, and purgative. | .. .. | Discharged well. |
| Thomas Thompson,.. | 20th 8 P. M. | 11 P. M. | Giddiness and pain in head, vomited bitter and watery fluid, feels low and depressed, no purging, pulse scarcely to be felt, skin cool. | Scruple doses of calomel with laudanum, blister to the stomach, magnesia for the vomiting, frictions, afterwards gentle purgatives. | .. .. | Discharged well. |
| William King, ..... | 20th 8 A. M. | 10 A. M. | Giddiness in head, pain in epigastrium, nausea, purging, cramps in legs, restlessness, feels very low, pulse feeble, suddenly attacked. | Large doses of calomel with laudanum, blister to the epigastrium, magnesia for the vomiting, afterwards small doses of calomel, antimony, and a purgative. | .. .. | Discharged well. |
| George Ochiltree, .... | 21st 2 A. M. | 8 A. M. | Vomiting, violent cramps, pulse feeble, no purging, during convalescence green bilious purging. | Scruple doses of calomel with laudanum, bled three times, magnesia for the vomiting, frictions, and calomel, antimony. | .. .. | Convalescent. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Basil Leggins, ..... | 21st 7 P. M. | 10 P. M. | Vomiting, succeeded by purging, pain in limbs, cold sweats, pulse feeble, oppressed, great thirst, sinking. | Scruple doses of calomel with laudanum, magnesia for the vomiting, effervescent draughts, blister to the epigastrium and spine, stimulating draughts, warm brandy and sago. | 28th Mar. | Continued collapsed for five days, then became delirious, heat returned to the extremities, but suddenly died. |
| Charles Cavanaugh, | 21st 7 A. M. | 11 A. M. | Purged, pain in epigastrium, has been vomiting, pulse feeble, voice faltering, looks oppressed and harassed, frequent cramps, stools white and watery, voice weak, great thirst. | Scruple doses of calomel, blister to the chest, magnesia for the vomiting, frictions, warm brandy and sago, afterwards purgatives. | .. .. | Convalescent. |
| Thomas Coxhill, ..... | 21st 5 A. M. | ½3 P. M. | Severe vomiting and purging, very low, can scarcely give any account of himself, extremities cold, apparently sinking, cold sweats, pulse scarcely to be felt. | Scruple doses of calomel with laudanum, magnesia for the vomiting, anodyne draughts with ether, frictions, warm wine and sago. | 22d Mar. | |
| Thomas Lepper, ..... | 22d 6 P. M. | 7 P. M. | Purging and vomiting, seems low and exhausted, pulse feeble, respiration, great thirst. | Scruple dose of calomel with opium. | .. .. | Discharged well. |
| Owen McDermott, .. | 22d 7 A. M. | 6 P. M. | Purging during the day, stools watery, exhausted, pulse quick and full, eyes sunk. | Bled to oz. xx., scruple doses of calomel, afterwards gentle purgatives. | .. .. | Discharged well. |
| William Foreman, .. | 22d 4 P. M. | 7 P. M. | Taken faint on parade with vomiting, looks oppressed, pulse feeble. | A scruple dose of calomel, and purgative. | .. .. | Discharged well. |
| James Budding, ..... | 22d 5 A. M. | 11 A. M. | Severe vomiting and purging, cramps, cold sweats, stools watery, pulse feeble, skin cold and clammy, very low, and thirsty. | Scruple doses of calomel, magnesia for the vomiting, anodyne enemas, frictions, blister to the breast and neck, stimulating draughts, warm sago and brandy, afterwards calomel and antimony. | 26th Mar. | |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 31st March, 1828, (continued.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| John Needs, ..... | 22d 12 A. M. | 5 P. M. | Constant vomiting, purging of watery fluid, pain in belly, oppressed and extremely weak, skin cold and clammy, pulse feeble, voice sunk, cramps in legs. | Small doses of calomel with opium, stimulating draughts every two hours, magnesia for the vomiting, frictions, blister to the epigastrium, warm sago and brandy. | 23d Mar. | |
| Joseph Dunkley,..... | 22d 10 A. M. | 8 P. M. | Purging and vomiting, slight cramps in legs, pain at epigastrium, pulse feeble, stools white like milk, oppression and anxiety. | Scruple dose of calomel with opium, calomel in small doses, warm wine and sago. | .. .. | Discharged well. |
| Serjeant W. Moore,.. | 22d 6 P. M. | 8 P. M. | Seized with vomiting and purging, countenance pale, pulse feeble, skin moist, no pain, great thirst. | Anodyne draughts, large doses of calomel, magnesia for the vomiting, blister to the epigastrium, and small doses of calomel and antimony. | ... .. | Discharged well. |
| Thomas Garrett, ... | 22d 6 A. M. | 7 P. M. | Purging and vomiting, cramps, appears low and dejected, pulse quick. | Scruple doses of calomel with laudanum, magnesia for the vomiting, frictions, fomentations, sago and wine, small doses of calomel and antimony, and purgatives. | .. .. | Convalescent. |
| Robert Thomas, ..... | 22d 6 P. M. | 10 P. M. | Pain in stomach, succeeded by vomiting, pulse quick, slight cramps, excessive thirst. | Bled to oz. xx. scruple doses of calomel with laudanum, afterwards calomel and antimony, purgatives. | .. .. | Convalescent. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Thomas Sharpe, | 23d 9 P. M. | 10 P. M. | Vomiting, pain in the epigastric region, pulse small, skin cold, great thirst. | Scruple dose of calomel with opium, magnesia for the vomiting, calomel, antimony in small doses, anodyne enemas. | .. .. | Discharged well. |
| Thomas Johnson, | 23d 9 A. M. | ½ 11 A. M. | Pain in head with giddiness, looks anxious, purging but no vomiting, great thirst, pain at the epigastrium, pulse quick, nausea. | Bled twice, small doses of calomel and antimony, anodyne enemas, gentle purgatives. | .. .. | Convalescent. |
| Samuel Ross, | 23d 9 A. M. | 10 P. M. | Pain in chest and epigastrium, vomiting and purging, pulse full, anxious and restless, skin damp and clammy. | Bled to oz. xvi. scruple doses of calomel with laudanum, enema anodyne. | .. .. | Convalescent. |
| John Mills, | 23d 12 P. M. | 10 P. M. | Vomiting and purging, pain at the epigastrium, great restlessness, cold damp skin, pulse soft, collapsed, sinking, reduced, anxious. | Scruple doses of calomel, blister to the scrobiculus cordis and spine, fomentations, frictions, and warm brandy and sago. | 24th. Mar. | |
| Jeremiah Fretter, | 23d 7 A. M. | 9 A. M. | Severe headach, pain in stomach, with bilious vomiting, pulse quick, eyes red. | Bled to oz. xx. scruple doses of calomel, magnesia for the vomiting, blister to the scrobiculus cordis, small doses of calomel and antimony, effervescent draughts. | .. .. | Convalescent. |
| James Willis, | In hospital. | reported at 10 A.M. | Vomiting and purging, restlessness, skin cold and clammy, pulse not perceptible, countenance sunk, collapsed. | Large doses of calomel with opium, frictions, blister to the epigastrium, stimulating draughts, warm brandy and sago. | 23d Mar. | Sixteen days in hospital with bubo: well at 7 A. M. sinking at 10, and died at 7 P. M. |
| Thomas Cooper, | 24th 5 A. M. | 2 P. M. | Purging and vomiting, pulse feeble, skin cold and clammy, cold sweats, collapsed, great thirst, voice changed, eyes heavy and sunk. | Anodyne enemas, scruple doses of calomel with opium, frictions, blister to the scrobiculus cordis, afterwards small doses of calomel and opium, warm brandy and sago. | 25th Mar. | |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 31st March, 1828, (continued.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| Patrick Carey, | 24th 1 P. M. | 5 P. M. | Vomiting and purging, cramps in thighs, restlessness, pulse quick, anxious and oppressed. | Calomel and opium in small doses, magnesia for the vomiting, frictions, blister to the scrobiculus cordis, afterwards calomel, antimony, sago and wine. | .. .. | Convalescent. |
| James Stopps, | 24th ½5 A. M. | 8. A. M. | Fainted on parade, very low, has been vomiting, feeble pulse, skin warm, giddiness, anxious looks, depressed. | Scruple doses of calomel, calomel and antimony in small doses, wine and sago. | .. .. | Discharged well. |
| William McLeland, | 24th 9 P. M. | ½ 10 P. M. | Pain in stomach with vomiting, pulse quick, feet cold, cramps of hands, legs, thighs, muscles of the neck and chest, pain at epigastrium. | Scruple doses of calomel with opium, magnesia for the vomiting, blister to the scrobiculus cordis, bled to oz. xx. | .. .. | Convalescent. |
| Duncan McIntosh, | 24th 5 A. M. | 10 A. M. | Pain in belly, has been vomiting green, bilious matter, pulse quick, skin clammy. | Scruple doses of calomel, blister to the epigastrium, frictions, bled to oz. xx. afterwards small doses of calomel and antimony, anodyne enemas. | .. .. | Convalescent. |
| Michael Whitaker | 24th, | 2 A. M. | Giddiness, nausea, great thirst, pain in head, pulse quick, cramps in legs. | Bled twice, large doses of calomel, | .. .. | Convalescent. |
| Henry Turner, | 24th, | 6 P. M. | Vomiting and purging, tongue foul, skin clammy and moist, countenance flushed, pulse quick. | Scruple doses of calomel with opium, magnesia for the vomiting, bled to oz. xxv. | .. .. | Convalescent. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Simon Leonard, | 24th 10 A. M. | 25th 2 A. M. | Violent cramps in feet, legs, and abdomen, eyes sunk, cold sweat, pulse gone, great restlessness, sinking. | Scruple doses of calomel with opium, frictions, blister to the scrobiculus cordis, warm brandy and sago. | 25th Mar. | |
| Joseph Sylvester, | 25th 5 A. M. | 3 P. M. | Purged to-day, faint, sunk low, nausea, retching, and pain at epigastrium and chest, stools watery, great sinking on sickness. | Calomel in small doses, anodyne enemas, Dover's powder, purgatives, and tonics. | .. .. | Doing well. |
| George Harle, | 26th 5 A. M. | 1 P. M. | Seized with watery purging, vomiting of watery fluid, looks sunk and depressed, pain and heaviness at stomach, tongue white, pulse feeble, skin clammy. | Small doses of calomel with opium, anodyne enemas, blister to the scrobiculus cordis, small doses of Dover's powder, magnesia for the vomiting. | .. .. | Convalescent. |
| John Atkins, | 26th 9 P. M. | 11 P. M. | Vomiting of watery, congee-like fluid, pain at stomach and epigastrium, has been purged since, eyes heavy and red, pulse feeble, skin cold, cramps in legs. | Large doses of calomel with opium, magnesia for the vomiting, blister to the breast, afterwards small doses of calomel with opium, antimony, and calomel, and purgatives. | .. .. | Convalescent. |
| John Ward, | 26th 6 P. M. | 7 P. M. | Faint and languid, pain at the stomach and epigastrium, has been purged, no vomiting, pulse regular but weak, tongue white. | Scruple dose of calomel, afterwards small doses of calomel and antimony, purgatives. | .. .. | Doing well. |
| John Shell, | 27th 8 M. | 10 P. M. | Seized with severe vomiting of bilious matter, succeeded by watery stools, oppressed, very low and dejected, pulse feeble, severe cramps in legs and thighs, cold sweats, skin clammy, pain and heaviness at the epigastrium. | Small doses of calomel with opium, frictions, anodyne enemas, stimulating draughts, blister to the epigastrium, brandy and sago. | .. .. | Doing well. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 13st March, 1828, (continued.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| John Rickett, ..... | 28th 8 A. M. | 9 A. M. | Seized with vomiting, succeeded by bilious purging, severe cramps in legs, griping pain about the epigastrium, eyes red and heavy, skin cold and damp, great thirst, pulse feeble. | Blister to the scrobiculus cordis, large doses of calomel with opium, anodyne enemas. | .. .. | Convalescent. |
| Matthew Darlow, .... | 28th 6 P. M. | 8 P. M. | Purging, vomiting of bilious matter, pain at the stomach, pulse quick, great restlessness. | Bled twice, scruple doses of calomel with opium. | .. .. | Convalescent. |
| John Baker, ..... | 28th 7 P. M. of the 27th. | 26 9 A.M. | Giddiness with pain in head, and epigastrium, vomiting of bilious matter, severe purging, great thirst, pulse feeble, skin moist and damp, looks pale and dejected. | Small doses of calomel with opium, frictions, blister to the breast, anodyne enemas, magnesia for the vomiting, bled to oz. xv. afterwards purgatives. | .. .. | Convalescent. |
| Frederick Hobbs, .... | 28th 5 P. M. | 11 P. M. | Pain in belly and epigastrium, purging, and vomiting of watery fluid, pulse feeble, great thirst, low and dejected, tongue foul, slight cramps. | Calomel in scruple doses with opium, blister to the breast, frictions, magnesia for the vomiting, anodyne enemas. | .. .. | Doing well. |
| James McCullough, .. | 28th 5 P. M. | 6 P. M. | Complains of heaviness at the epigastrium, vomiting and purging, giddiness in head, pulse quick, skin moist. | Scruple doses of calomel with opium, bled to oz. xvi. afterwards gentle purgatives. | .. .. | Convalescent. |
| Jacob Carlisle, ..... | 28th 10 P. M. | 11 P. M. | Seized with giddiness and thirst, with sensation of weakness, pulse quick but languid, low and dejected. | Scruple dose of calomel, and gentle purgatives. | .. .. | Convalescent. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Daniel Jordan, | 28th 1 A. M. | 7 A. M. | Taken faint on parade, with heaviness at the stomach, seems low and dejected, pulse feeble. | Small doses of calomel and gentle purgatives, bled twice. | .. | .. | Doing well. |
| Ezekiel Boot, | 28th 7 P. M. | 9 P. M. | Attacked with vomiting, succeeded by severe cramps in legs, pain at the stomach, pulse quick and full, skin hot, great thirst. | Bled to oz. xxx. scruple doses of calomel, afterwards small doses of calomel and antimony, gentle purgatives. | .. | .. | Convalescent. |
| Timothy Silby, | 29th 5 A. M. | 8 A. M. | Taken with vomiting, pain at epigastrium, eyes heavy and red, great restlessness, pulse feeble, great thirst. | Bled to oz. xv. scruple doses of calomel, afterwards gentle purgatives. | .. | .. | Convalescent. |
| John Martin, | 29th 3 A. M. | ½ 8 A | Great anxiety, distress and sinking, purging of foul fæces, vomiting of watery fluid, severe pain at epigastrium, cramps in his legs, pulse feeble, countenance sunk, voice changed, skin cold and clammy, apparently sinking fast. | Small doses of calomel with laudanum, blister to the scrobiculus cordis, frictions, anodyne enemas, stimulating draughts, brandy and sago. | 29th Mar. | | A very delicate subject, had a severe attack of remittent fever in December, and dysentery in January. |
| David Pratt, | 29th 3 A. M. | 6 A. M. | Severe pain at the epigastrium, succeeded by vomiting and purging, pulse feeble, skin cool, restlessness. | Scruple doses of calomel with opium and gentle purgatives. | .. | .. | Convalescent. |
| Michael Buckley, | 29th 5 A. M. | 7 P. M. | Vomiting, and purging of watery stools, vomiting of watery congee-like fluid, severe pain in belly and epigastrium, violent cramps of the muscles of the legs and thighs, distress of countenance, eyes heavy, pulse feeble. | Calomel in small doses with opium, frictions, blister to the scrobiculus cordis, stimulating draughts, anodyne enemas, magnesia for the vomiting, brandy and sago. | .. | .. | Doing well. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 14th to 31st March, 1828, (concluded.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| William Monks, | 29th ¼ 12 P.M. | 12 Noon. | Eyes heavy and languid, countenance distressed, faintness, vomiting of muddy slimey fluid, severe pain at epigastrium and belly, great oppression, cramps in feet and legs, pulse slow and feeble, skin moist, great thirst. | Scruple doses of calomel with laudanum, blister to the scrobiculus cordis, sago and wine, afterwards small doses of calomel and antimony. | .. .. | Convalescent. |
| Joseph Lowe, | 29th. | 11 P. M. | Taken with violent cramps, seems in agony, vomiting of watery fluid, burning pain at the epigastrium, pulse feeble, skin warm. | Bled twice, scruple doses of calomel, gentle purgatives. | .. .. | Doing well. |
| James Hailes, | 29th 12 P. M. | 30 4 A.M. | Severe purging of watery fluid, vomiting of thick bilious matter, pulse feeble, pain at the scrobiculus cordis, much oppression, great debility, eyes languid, sinking, cold sweats, respiration laborious, great thirst. | Scruple doses of calomel with opium, magnesia for the vomiting, blister to the scrobiculus cordis, anodyne enemas, stimulating draughts, frictions, sago and brandy. | 30th Mar. | |
| William Scott, | 30th 5 A. M. | 6 A. M. | Taken faint on parade, pain in his head and back, slight vomiting, uneasiness, pulse quick, skin natural, giddiness, great thirst. | Calomel in a scruple dose, small doses of calomel and antimony, and gentle purgatives. | .. .. | Doing well. |

| | | | | | | |
|---|---|---|---|---|---|---|
| George Pollard, | 30th 11 A. M. | 1 P. M. | Looks very languid and stupid, respiration laborious, purging of yellow watery stools, vomiting of bitter bilious matter, pain in left side, and heat at the epigastrium, faintness, great thirst, pulse full and soft, tongue white. | Small doses of calomel with opium, anodyne enemas, blister to the epigastrium, magnesia for the vomiting, gentle purgatives, warm sago and wine. | .. .. | Doing well. |
| John White, | 31st. | 8 P. M. | Pain at the stomach with nausea, headach, uneasiness, pulse quick, skin dry, countenance flushed, great thirst. | Scruple dose of calomel, bled twice, purgatives. | .. .. | Doing well. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment of Foot, from 1st to 15th April, 1828.*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| Thomas Mitchell, ... | 1st 11. A. M. | 10 P. M. | Purging of yellow, green mucus, vomiting bilious watery matter, pain at epigastrium, heaviness at the stomach, eyes heavy, pulse full, face flushed, great thirst, pain in head. | Bled to oz. xxx. scruple doses of calomel with opium, frictions, magnesia, fomentations, afterwards small doses of calomel, leeches to the temples, gentle purgatives, brandy and sago. | .. .. | Quite well. |
| James Dunn, ..... | Do. 8 P. M. | 10 P. M. | Pain at the epigastrium, vomiting of watery fluid, faintness, restlessness, eyes heavy and red, looks dejected, pulse hard. | Bled twice, calomel in scruple doses, with laudanum, magnesia for the vomiting, blister to the chest, afterwards small doses of calomel, gentle purgatives. | .. .. | Quite well, discharged. |
| James Mackey, ..... | Do. 4 A. M. | 9 P. M. | Griping pain in belly, sickness of stomach, vomiting of green fluid, heavy and stupid, skin damp, pulse quick, great thirst. | Bled twice, scruple doses of calomel, leeches to the epigastrium, fomentations, afterwards emollient enemas, effervescing draughts, magnesia for the vomiting, and calomel, antimony. | .. .. | Convalescent. |
| William Parkinson, .. | 2d 5 P.M. | 10 P. M. | Seized with faintness, succeeded by vomiting, severe pain about the stomach, pulse quick, looks dejected. | Bled to oz. xx. scruple doses of calomel, afterwards gentle purgatives. | .. .. | Quite well, discharged. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Parker Thorpe, | 2d 8 P. M. | 11 P. M. | Severe vomiting and purging, pain about the stomach, uneasiness, quite stupid and heavy, great thirst, eyes fixed, pulse almost gone, severe cramps in legs and thighs. | Stimulating draughts, brandy and sago, afterwards bled to oz. xx. calomel in scruple doses, effervescing draughts, calomel and antimony, and gentle purgatives. | .. | .. Doing well. |
| Isaac Burkett, | 3d 6 P. M. | 7 P. M. | Severe pain about the stomach, succeeded by bilious vomiting and purging, pulse quick and full, violent thirst, uneasiness. | Bled to oz. xxx. scruple doses of calomel with opium, blister to the epigastrium, afterwards small doses of calomel and antimony, and gentle purgatives. | .. | .. Quite well discharged. |
| Josiah Brooks, | do. 1 P. M. | 4 P. M. | Vomiting of white congee-like fluid, purging of ash coloured mucus, great uneasiness, eyes heavy and sunk, severe cramps in legs, collapse, pulse feeble, cold sweats, great thirst, sinking. | Calomel in scruple doses, with opium, frictions, blister to the scrobiculus cordis, anodyne enemas, stimulating draughts, brandy and sago. | 4th April. | |
| Wm. Chamberlain, | 4th 11 P. M. | 11 P. M. | Seized with giddiness, and uneasiness at stomach, vomiting, watery fluid, eyes heavy and dull, pulse quick, great oppression. | Bled to oz. xxx. scruple doses of calomel, afterwards calomel, antimony in small doses, with purgatives. | .. | .. Quite well, discharged. |
| William Dexter, | do. 5 A. M. | 9 A. M. | Severe pain in head and belly, purging and griping, stools white and watery, eyes heavy and red, oppression at pericardium, faintness, looks very haggard, pulse quick, cramps in legs and thighs, sinking. | Bled to oz. xvi. frictions, calomel with opium, anodyne enemas, blister to the epigastrium, fomentations, brandy and sago. | 4th April. | |
| Robert Thomas, | do. 8 P. M. | 10 P. M. | Severe pain about the stomach, cramps in legs, pulse feeble, great thirst. | Calomel in scruple doses with opium, bled to oz. xx. afterwards calomel and antimony, Dover's powders, and gentle purgatives. | .. | .. Quite well, relapse. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 1st to 15th April, 1828, (continued)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| William Crawley, | 5th 5 P. M. | 9 P. M. | Severe pain in head and scrobiculus cordis, violent cramps, eyes heavy and bloodshot, pulse low and feeble, countenance distressed, very faint and stupid, great thirst. | Calomel in scruple doses with opium, and gentle purgatives. | .. .. | Convalescent. |
| John Ward, | do. 2 P. M. | 5 P. M. | Faintness, pain at stomach, pulse feeble, great thirst. | A scruple dose of calomel and gentle purgative. | .. .. | Quite well, discharged. |
| James Bennett, | 6th 10 P. M. | 1 P. M. | Giddiness and pain in head, eyes heavy and suffused, pulse feeble, skin damp, great debility, vomiting of green bilious matter, uneasiness, great thirst. | Scruple doses of calomel, blister to the chest, magnesia for the vomiting and frictions, afterwards small doses of calomel and gentle purgatives. | .. .. | Quite well. |
| Patrick Wrenn, | 7th 11 P. M. | 7 A. M. | Watery yellow stools, severe pain at epigastrium, great uneasiness at the scrobiculus cordis, faintness, eyes languid, adnata slightly vascular, tongue foul, pulse low and small, skin cold and moist. | Scruple doses of calomel with opium, fomentation to the abdomen, anodyne enemas, blister to the epigastrium, afterwards small doses of calomel, antimony, and purgatives. | .. .. | Convalescent. |
| William Attewell, | do. 1 P. M. | 5 P. M. | Severe pain at epigastrium, succeeded by vomiting and purging of greenish white fluid, pulse quick and weak, skin damp, countenance sunk, great thirst. | Scruple doses of calomel, blister to the epigastrium, frictions, and afterwards gentle purgatives. | .. .. | Convalescent. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Thomas Leader, | 7th 1 P. M. | 8th 4 A. M. | Purging of white frothy mucus, vomiting of watery fluid, violent cramps in feet and legs, eyes sunk, voice changed, cold sweat, skin moist, great thirst, pulse feeble,—a delicate man. | Scruple doses of calomel, with opium, anodyne enemas, frictions, blister to the scrobiculus cordis, magnesia for the vomiting, effervescing draughts, brandy and sago. | 9th April. | |
| George Tawse, | 8th 1 P. M. | 10 P. M. | Vomiting, pain at epigastrium, oppression, restlessness, pulse quick, great thirst, purging of watery fluid. | Bled twice, scruple doses of calomel, magnesia for the vomiting, afterwards small doses of calomel, antimony, and purgatives. | .. .. | Quite well. |
| John Butwell, | do. 8 P. M. | 11 P. M. | Griping and pain in bowels, succeeded by bilious vomiting, skin cool, faintness, great debility, pulse feeble, tongue white. | Scruple doses of calomel with opium, afterwards gentle purgatives. | .. .. | Quite well. |
| Thomas Dodson, | 9th 3 A. M. | 11 A. M. | Purging of watery fluid, violent cramps in legs and thighs, great thirst, uneasiness, pulse soft, skin damp, collapse, tongue foul, eyes sunk. | Scruple doses of calomel with opium, blister to the chest, frictions, anodyne enemas, brandy and sago. | 10th April. | Relapse. |
| John Griggs, | 10th 6 A. M. | 6 A. M. | Seized with violent pain in belly, with purging of feculent matter, oppression at the pericardium, pulse 50 to 60, skin cold, damp, and clammy, eyes heavy, tongue foul, very thirsty, seems dejected. | Calomel in scruple doses with opium, fomentation to the abdomen, anodyne enemas, Dover's powder, and gentle purgatives. | .. .. | Quite well. |
| Richa d Kemp, | do. 2 P. M. | 11 A. M. | Seized with pain in belly, succeeded by vomiting and purging of watery fluid, eyes heavy and dull, pulse quick, skin hot, excessive thirst, cramps in legs. | Bled to oz. xx. scruple doses of calomel, fomentations, magnesia for the vomiting, and afterwards gentle purgatives. | .. .. | Convalescent. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 1st to 15th April 1828, (continued.)*

| *Names.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| William Parkinson, | 10th 4 P. M. | 5 P. M. | Severe pain at the epigastrium, succeeded by bilious vomiting, restlessness, great thirst, pulse quick. | Bled to oz. xx. scruple doses of calomel, afterwards calomel and antimony, and gentle purgatives. | .. .. | Convalescent, relapse. |
| Bernard Burke, | 11th 6 P. M. | 9 P. M. | Violent vomiting, congee-like fluid, purging watery, eyes heavy and sunk, voice changed, cramp in belly, thighs, and legs, great thirst, pulse feeble, collapsed, great oppression and restlessness. | Scruple doses of calomel with opium, anodyne enemas, frictions, blister to the chest, magnesia for the vomiting, brandy and sago, afterwards calomel and opium in small doses. | 13th April. | Relapse. |
| George Giles, | do. 7 P. M. | 11 P. M. | Seized with vomiting, uneasiness at the stomach, pulse quick, eyes heavy and dull, great thirst. | Scruple doses of calomel and purgatives. | .. .. | Quite well, discharged. |
| William Moore, | do. 9 A. M. | 3 A. M. | Much sunk and exhausted, violent cramps in legs, thighs, and toes, eyes sunk, voice changed, pulse scarcely perceptible, extremities cold, severe watery purging and vomiting, is too ill to give an account of himself. | Calomel in small doses with opium, anodyne enemas, blister to the scrobiculus cordis, frictions, sago and brandy stimulating draughts. | 11th April. | |
| Edward Roper, | 12th 9 P. M. | 11 P. M. | Severe pain at epigastrium, great anxiety, pulse 80, full, and soft, excessive thirst, violent cramps in belly, legs, and thighs, seems in great agony. | Calomel in scruple doses with opium, blister to the chest, hot bath, anodyne enemas, afterwards small doses of calomel and opium, fomentation, warm brandy and sago, and emollient enemas. | .. .. | Relapse, doing well. |

| | | | | | | |
|---|---|---|---|---|---|---|
| James Lodge, ..... | 12th 3 P. M. | 11 P. M. | Severe purging and vomiting of watery fluid, cramps in his thighs, legs, and toes, cold and collapsed, pulse scarcely to be felt, eyes sunk and dull, voice scarcely audible, skin shrunk, is sinking fast. | Calomel in small doses with opium, blister to the abdomen, anodyne enemas, brandy and sago, frictions, stimulating draughts. | 13th April. | |
| James Draper, ..... | 11th 11 A. M. | 12 5 A.M. | Severe purging of white congee-like fluid, pain at epigastrium, looks haggard, eyes dull, and heavy, great thirst, pulse quick, tongue foul. | Calomel in small doses with opium, anodyne enemas, blister to the epigastrium, afterwards bled to oz. xxv. small doses of calomel and antimony. | .. .. | Doing well. |
| Henry Barker, ..... | 13th 5 P. M. | 8 P. M. | Seized with pain in stomach, succeeded by vomiting, looks quite dejected, excessive thirst, eyes heavy and dull, pulse quick and small. | Scruple doses of calomel with opium, afterwards bled to oz. xx. small doses of calomel and ipecacuanha enemas. | .. .. | Doing well. |
| Michael Roe, ..... | 13th 5 A. M. | 8 A. M. | Purging of white watery fluid, vomiting similar, hands and feet cold, shrivelled, cramps in legs and thighs, eyes sunk, excessive thirst, voice changed, pulse quick and feeble, great uneasiness, tongue foul, clammy sweats. | Small doses of calomel with opium, anodyne enemas, magnesia for the vomiting, brandy and sago, afterwards small doses of calomel and antimony. | .. .. | Doing well. |
| Edward George, ..... | 13th 1 P. M. | 5 P. M. | Violent pain in belly, vomiting of watery fluid, eyes heavy and dull, pulse quick, great thirst, seems very restless and uneasy. | Bled twice, calomel in scruple doses, emollient enemas, fomentations, small doses of calomel with opium. | .. .. | Convalescent. |

*Return of Cholera Cases treated in His Majesty's 14th Regiment Hospital, from 1st to 15th April 1828, (continued.)*

| *Name.* | *When attacked.* | *When sent to Hospital.* | *State of Disease on Admission.* | *Remedies employed.* | *When died.* | *Remarks.* |
|---|---|---|---|---|---|---|
| John Atkins, ..... | 13th 8 P. M. | 11 P. M. | Seized with vomiting and purging, severe pain in belly, great thirst, pulse quick, tongue foul, seems in great agony, eyes heavy and sunk. | Bled to oz. xv. calomel in scruple doses with opium, anodyne enemas, frictions, magnesia for the vomiting, afterwards small doses of calomel. | .. .. | Doing well, relapse. |
| William Chitty, ..... | 14th 5 A. M. | 6 A. M. | Seized with vomiting of yellow bilious fluid, purging of watery fluid resembling congee, pain in epigastrium and belly, oppression at pericardium, eyes red and heavy, very thirsty, pulse 70, full, and soft, tongue foul. | Calomel in scruple doses with opium, anodyne enemas, frictions, afterwards small doses of calomel and opium, and gentle purgatives. | .. .. | Convalescent. |
| Timothy Kempton,.. | do. 9 A. M. | 1 P. M. | Purging with vomiting of white matter, eyes red and watery, great debility, excessive thirst, skin clammy, pulse feeble. | Scruple doses of calomel with opium, anodyne enemas, frictions, magnesia for the vomiting, blister to the chest, afterwards small doses of calomel. | .. .. | Convalescent. |
| Terence O'Brien, .... | do. 2 P. M. | 5 P. M. | Violent pain at stomach, and difficult respirations, uneasiness, great thirst, pulse quick, skin hot. | Bled to oz. xx. scruple dose of calomel with opium, fomentations, gentle purgatives. | .. .. | Convalescent. |
| John Rogers,..... | do. 4 A. M. | 7 A. M. | Violent pain at stomach with purging, restlessness, great thirst, pulse quick and full, skin hot. | Bled to oz. xxx. scruple dose of calomel, fomentations, afterwards small doses of calomel and antimony. | .. .. | Doing well, convalescent. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| John Fraker, ..... | do. 1 P. M. | 10 P. M. | Vomiting of watery fluid with purging, pain in abdomen and epigastrium, much uneasiness, pulse feeble, great thirst. | Scruple dose of calomel, anodyne enemas, blister to the chest, afterwards small doses of calomel with opium, and gentle purgatives. | .. | .. | Doing well. |
| Henry Everitt, ..... | 15th A. M. | 6 A. M. | Vomiting of yellow bilious matter, great thirst, pulse quick, much uneasiness, and dejected. | Bled to oz. xv. calomel scr. i magnesia for the vomiting, gentle purgatives, and small doses of calomel and opium. | .. | .. | Doing well. |
| Samuel Payne, ..... | do. 2 A. M. | 7 A. M. | Vomiting of watery fluid, purging with violent pain at the epigastrium, oppression and uneasiness, great thirst, pulse rapid, but small. | Scruple doses of calomel with opium, blister to the epigastrium, and gentle purgatives. | .. | .. | Doing well. |

# REPORT

ON

## OPHTHALMIA IN H. M. 44TH REGT.

By Wm. DAUNT, Esq. M. D.

COMMUNICATED BY THE MEDICAL BOARD.

*Presented March* 1, 1828.

I HAVE the honor to communicate, for your information, the few following remarks on the ophthalmic affections prevailing in H. M.'s 44th Regiment, during the last three months; and which at first were calculated to excite considerable alarm until experience convinced us, that they had no tendency to spread in the corps, and that to whatever causes they owed their origin, these were very confined in their operation.

Ophthalmic affections, chiefly confined to simple inflammation of the tunica conjunctiva, mild in degree, and readily yielding to very moderate antiphlogistic measures, have been found here* at all seasons of the year; but though more numerous in the months of August, September, and October, than at any previ-

* Ghazeepore.

ous period, as appears from the following scale of admissions:

| | | | |
|---|---|---|---|
| January ... 2 | April ..... 8 | July ..... 7 | October ..... 18 |
| February ... 5 | May ..... 13 | August ..... 28 | November ... 6 |
| March ..... 4 | June ..... 5 | September .. 21 | December ... 5 |

yet they have never been sufficiently numerous, with reference to the strength of the corps, to excite suspicions of their existing epidemically.

Towards the close of September, purulent ophthalmia for the first time made its appearance; and for a period of three weeks or a month every case admitted into hospital was of a most aggravated description; but although the purulent form still continues, it is now comparatively mild and easily subdued.

The disease made its first approach, by a sense of stiffness in moving the eyeball, or, in some few instances, by a slight sensation of irritation, as if from particles of sand on the surface of the conjunctiva; which membrane became of a light, reddish colour, with watery suffusion and peculiar brightness of the eyes. The eyelids, particularly the upper one, soon became very much swollen, of a deep purple colour, which spread so as to form a large circle round the eyes. The swelling of the upper lid now increased every hour, attended with spasmodic constriction, and overhanging the lower one so completely as to prevent all access to, or examination of the eye itself. In the course of twenty or thirty hours a purulent discharge flowed in great abundance on raising the lid; and

the small portion of its inner surface which could be seen was of a livid colour, extremely vascular, and of a villous appearance.—The pain was not great, and, indeed in some of the worst cases, was scarcely noticed at all: a sense of soreness, and of over-distension of the eye, were the general complaints of the patients. In some few, a sharp lancinating pain was felt deep in the orbit, which was always aggravated at night, and declined towards morning.

The upper eyelid in some instances attained a most enormous size and thickness, and continued in that state for many days; the purulent discharge being at the same time most profuse.

When the tumefaction of the lids declined, so as to admit of examination of the eye itself, the mischief going on all this time had, in some few cases, wholly disorganized the eye. The cornea was found in various states, from turbidness to deep opacity. It was found of a fleshy appearance, covered with fungous excrescences, or with small ulcers, through which minute portions of the iris had protruded. The conjunctiva was universally thickened, and elevated above the cornea, which seemed sunk far below: it had often an œdematous appearance: and in some had attained to a degree of hardness bordering on cartilaginous.

The progress towards recovery was seldom steady; relapses and aggravation of symptoms were frequent,

which, if not referred to changes of weather, seem otherwise unaccountable.

In many the first symptoms seemed to yield easily, but by frequent, slight returns and almost imperceptible degrees, ulcers of the cornea and partial opacities of that membrane succeeded; but in general those cases have been perfectly restored.

The treatment was in the first instance strictly antiphlogistic: general bleeding to 20 ounces, sometimes repeated, frequent applications of leeches, cupping the temples, blisters to the temples, behind the ears, and to the nape of the neck : the exhibition of neutral purging salts, and the daily use of the tartrite of antimony in nauseating doses.

While the lids remained so much swollen as to prevent examination of the eyes, during which internal mischief was going on, the external parts about the eye were freely rubbed with the extract of Belladonna, with the object of dilating the pupil, and disturbing any adhesions of the iris which might be forming ; and I have no doubt that in some instances it produced the desired result.

In some cases warm fomentations, in others cold saturnine lotions were used, as either seemed to agree with the feeling and desires of the patient.

In every case of ulcer of the cornea, the nitrate of silver was used, in substance reduced to a mere point,

and applied for a moment to the spot: it had always a decided good effect, and in the few cases where a small portion of the iris had protruded without any more important injury having occurred, its use was most beneficial, leaving after it a slight opake cicatrix, which is every day becoming more circumscribed.

When the conjunctiva was extremely vascular, with villous surface, free scarifications were adopted before the application of the sulphate of copper, which was the means found most successful in restoring that membrane to its natural appearance.

In a few cases the exuberant granulations of the conjunctiva of the lids required the use of nitrate of silver: at this time the collyrium I found most useful consisted of the camphor mixture with sulphate of zinc and tincture of opium.

I subjoin a list of the men now remaining in the hospital, who have been the subjects of this affection, which, with one who has already been dismissed from treatment nearly blind, form the total who have suffered permanent injury.

John McDonald, admitted 22d September, with purulent inflammation of both eyes, ending in ulcer, protrusion of the iris of the right eye; the cicatrix of the cornea remains thick and opake, the rays of light wholly obstructed; he has a slight pterygium of the

left eye, the membrane is almost transparent, and is daily less perceptible.

Serjt. William Potts, admitted 26th September, with purulent inflammation of both eyes, with thickened eyelids, ending in ulceration of the cornea, protrusion of the iris, and staphylomata of both eyes: the left is still sensible to light.

George Breadon, admitted 5th October, with purulent ophthalmia of both eyes, with thickened and granulous eyelids, followed by ulceration of both corneæ, protrusion of irides, staphyloma of the right eye; cornea of the left shows a large white opaque cicatrix; conjunctiva still inflamed.

James Connelly, admitted 6th October, with purulent ophthalmia of both eyes, followed by ulcer and protrusion of the iris; staphyloma of the left; right eye perfect, some inflammation still remaining.

Thomas Kelly, admitted 7th October, with purulent inflamation of both eyes, ending in ulcer of the right cornea; white cicatrix remains; sight not entirely lost; left eye perfect; some inflammation remaining.

Patrick Oxford, admitted 8th October, with purulent ophthalmia, thickened and vascular eyelids, ending in ulcer of both corneæ, protrusion of the irides, staphylomata; is barely sensible of light.

John Hewett, admitted 6th November, with purulent ophthalmia of both eyes, followed by enormous thickening of the eyelids, ulcers of, and protrusion through the cornea, staphylomata; vision destroyed; chronic inflammation remaining.

ON THE

# CLIMATE OF THE JYNTEA HILLS.

By Hy. L. BEADON, Esq. M. D.

*Presented June 7,* 1828.

On the 7th October 1827, I left Gowahattee, Assam, where the thermometer stood daily from 82 to 88, with the intention of visiting the hills of Nungclow. The hills are about 4800 feet high. The latitude, longitude, &c. I know not, nor do I believe these have as yet been correctly ascertained. The change was very perceptible; and on remarking the thermometer daily for the remainder of the month, I found the average to be at 6 o'clock A. M. 58, 10 A. M. 66, noon 68, 4 P. M. 68. In November it got gradually lower; and, for the few days that I remained there in the month of December, it was at 6 A. M. 44, and never above 60 or 62 during the day: but on my return to Gowahattee, I found it standing at 75. The natives, and those of our servants who had been there during a winter before, considered that it was a particularly mild winter. As nothing can be a stronger proof of the salubrity of the place, than its effects on invalids, I shall in a very casual way mention what I myself saw.

Lieutenant W., who preceded me by a few days, was when he left Gowahattee in a very weak and debilitated state, suffering from profuse nightly sweats, (which medicine did not appear to remove,) and general disordered health, occasioned by the fatigue and privations he underwent during a journey to and from the Irawaddy. He was so much reduced that I did not consider he could recover without a voyage to sea; and I recommended his proceeding to Calcutta with that intention, when Nungclow was mentioned, and he preferred trying that place in the first instance. The effects in one week were truly astonishing: he had not a single night sweat after his arrival, and he continued recovering until his departure. When he left that place, it was with the intention of undertaking another journey to the Nungcomb country.

The second case was a Mr. S. and a more disordered and constipated state of the bowels, I scarcely ever saw. Mr. S. for years had been obliged to have recourse to opening medicines; but for some months previous to his visit to Nungclow, the most drastic purges were administered, and with but little effect, and those were obliged to be repeated every second day; and no one medicine would have the desired effect after having taken two or three doses of the same kind. In the hills, the patient's appetite and general health rapidly improved, the bowels became regular; so much so, that about six weeks after his arrival he observed, that "he felt as well, even better

that he had ever been since his arrival in India (upwards of 20 years), and that he did not recollect ever having passed so long a period without having had recourse to medicine." This was a case of so long a standing, that even if improvement did take place, I thought it would be a considerable time first, and I was most anxious for him to remain in the hills for some months, fearing a return on his again going down into the plains: but as the patient was anxious to return at this time, and considering it would be more advisable his doing so, and returning to the hills after the cold season had passed, he left for Gowahattee on the 14th December, and his bowels continued regular until the beginning of April 1828, when he took one grain of calomel with the desired effect. In that month he returned to Nungclow, and his general health is at this time (May 23d) good, and bowels regular; and I have not the slightest doubt, that by remaining there during the hot season it will eventually be established.

I myself experienced great benefit.

In the month of April 1828, I again left Gowahattee. The thermometer had been for some days as high as 86,88,to 90, at the same time the thermometer at Nungclow at day-light was at 64, and not exceeding 74 at any part of the day, (on one occasion it was as high as 76, on which day at Gowahattee it was 92—this is the highest it has been, up to this day, May 23d,) and after a little rain which fell was at

the warmest part of the day at 71; besides which there is a dry breeze during the whole of the day, that even in the sun it does not feel uncomfortably warm. It was remarked by two gentlemen on our arrival, that the breeze reminded them of the hot winds in the upper provinces, as it blew constantly from the west, but with the agreeable difference of being delightfully cool, and unaccompanied by clouds of dust.

The natives of the plains, during both visits, have many of them been attacked with intermittent fever, although, with one or two exceptions, but slightly, and which have pretty generally left them by the third day after having applied for medicine. As most of them had been there some time previous to the attack, it could not be considered as caused by the jungle passed through on the road to Nungclow, and Nungclow itself is the last place you would expect to find marsh miasma. From their dress being so open, and not accustomed to a temperature of 45, and as no one European suffered, I cannot but consider it attributable to the cold. There were some prisoners here for the purpose of building, and who had been here some months, and, with the exception of one or two cases of fever, were perfectly healthy. The contrast between them and those in the jail at Gowahattee was very great; in fact the only thing from which they suffered was the bite of a small insect, from which the natives of the hills themselves appear to suffer.

The temperature throughout the year is, I believe, about 12 or 15 degrees lower than the plains, the air not so much charged with moisture, and in every respect, as far as I could judge, a healthy place. The natives appear *occasionally* to have enlarged spleen: I have only seen two cases. The situation appears favorable in two other respects. In the sides around, the country presents nothing in the shape of jungle or underwood; and from the general slope on all sides, the roads are always dry, so that immediately after hard rain, an invalid might always command sufficient exercise. And as I understand Government have authorised a Sanitarium to be built on the Sylhet side, I have not much doubt but that some years hence, when the place becomes generally known, and amusement provided for visitors, the Cape of Good Hope will be much less resorted to by Bengal invalids, as the one is so much easier of access than the other. A steam boat would go from Calcutta to within a few miles (seven) in four days, at which place a country boat could be kept, which would take an invalid to the foot of the hills on the 5th; and on the 6th day, he would be in a most delightful climate.

ON THE

# EPIDEMIC BRONCHITIC FEVER

OF

# INFANTS AND YOUNG CHILDREN

PREVALENT IN CALCUTTA, DURING THE RAINS, OR MONTHS OF JUNE, JULY, AND AUGUST, 1828.

By J. ADAM, M. D.

*Presented in August,* 1828.

THE recent occurrence of an epidemic febrile affection among children having attracted a considerable share of my attention, I have drawn up a brief account of the disease, which I now present to the Society, chiefly in the hope that it may induce other members to contribute their observations on the same subject. It is at all times desirable, that the circumstances attending epidemics be placed fully on record. From the wide-wasting pestilence of Egypt, and the yellow fever of the West Indies, or our cholera of the East, to the mild influenza of temperate climates, the distance in the scale of danger is as remote, perhaps, as their relative localities on the face of the globe: yet the latter attacking, as it occasionally does, a whole community at a time, and interrupting the course of business, and

the ordinary socialities of life, excites necessarily a greater degree of interest in the public mind, than could be created by any sporadic form of malady however severe. What we are all equally liable to, becomes a matter of common concern; and private and personal sympathy, on such occasions, hastens to the aid of professional exertion. It must be fresh in the recollection of the members of this Society, how many of themselves suffered from the visitation of the epidemic (as it was termed) of 1824; and I have no doubt, that more than one will be found, who could adduce ample evidence of the nature of the affection, which I am now bringing to consideration, derived from their own families or those of their friends.

As far as my own experience goes, not one child, out of 100, under 4 years of age, has escaped the attack. Although in different individuals exhibiting various degrees of severity, it has naturally engaged in some a much greater share of attention than in others; yet the general character of the disease, as will appear in the sequel, has been the same in all.

Before proceeding to detail the symptoms of the malady as they have been presented in the cases falling under my own management, I cannot help remarking on the advantages which professional men mutually derive from a frequent, and unreserved communication with each other on the common objects of their labors. It was about a month or six

weeks ago, that in conversation with a medical friend I had the first intimation of the existence of this disease. The gentleman I allude to had just returned from an anxious and protracted attendance on a little patient, whose case proved fatal. The symptoms, as related to me, had been at first those attendant on fever generally, without any marked local affection; and it was not till within a comparatively short period of dissolution, that the peculiar difficulty of breathing was observed, and the rattle in the chest, so characteristic of the disease. The body was not examined, but the conclusion drawn from the above circumstances, as well as from a retrospect of the whole progress of the affection, now that attention was aroused to some fixed seat, was, that the child had labored under bronchitis,—a variety of inflammation, it is needless to remark, sufficiently formidable to merit serious consideration, at whatever period of life it may occur. The particulars of one or two other cases were adverted to, and the subject thus incidentally introduced prepared me, in some measure, to encounter the disease in my own practice.

In place of an epidemic bronchitic fever affecting infants and young children, which I have designated it, perhaps it may with more propriety be termed an epidemic fever with determination to the mucus membrane of the bronchia. The phrase *bronchitis* is too specific, and, as implying inflammation, appears objectionable; for, of the actual presence of

this condition of the local structure, I am by no means certain.

In its approach the complaint is slow and insidious, but most rapid and violent in what may be called its onset; and few instances have come under my observation, in which I have not considered the child in danger from the period of my first visit. It has generally been stated by the mother, or attendants, that the little patient had been suffering for a day or two from a cough or cold, but too slight to attract particular notice. Suddenly fever came on, and it was then only they deemed it necessary to send for medical advice. In this stage of the disease, I have generally found a very high degree of pyrexia present; the skin burning hot; the pulse upwards of 130, peculiarly hard and full; the heart, as felt through the parietes of the thorax, beating with unusual violence; the tongue whitish, or what I term of a lichenry aspect, (that sort of appearance frequently seen in young children, and females of an irritable habit, consisting of small circles of white enclosing a dot of red, and studding the surface not unlike lichen or moss on a tree or old stone wall,) In one only have I noticed any redness of the conjunctiva with watery eye, and sneezing in two, such as occur in rubeola and catarrh. There has been no flushing of the face, but rather an unnatural degree of *paleness*; in some cases, considerable restlessness or jactitation, but in others very little disposition to move, and *apparently* no cause of disturbance what-

ever. Extreme drowsiness has been observed in some from the commencement, which has continued more or less during the existence of the fever. The state of the bowels has not appeared to differ from that in health, previous to the administration of medicine. In a majority of the cases, there has been *great oppression of the respiration.* This indeed has formed the *character* of the disease, and has perhaps existed in all to a greater extent than the visible (or, with more propriety, *audible*) signs indicated. Some, when first seen, have breathed with much difficulty, and in a way to be recognized both by the eye and ear, before approaching to within several yards of them. The *kind* of breathing has been more stridulous, than sonorous, as if the air in its passage through the air cells and bronchia was obstructed by the presence of thin or fluid mucus; differing on the one hand from the loud ringing noise of croup, and on the other from the contracted wheezing of asthma. Were I, in point of sound merely, to compare it to any other affection, it would be to the advanced stage of the former mentioned disease, to which, indeed, in the manner of its termination, where the result proves fatal, it bears a strong resemblance. In many cases, however, at first this noise in breathing is so obscure as to be perceived only on bringing the ear close to the mouth or chest of the patient, or on applying the hand over the latter, as recommended for percussion. The stethoscope I have not had recourse to; but it is obviously an instrument well adapted to diseases of the

chest in children; and I have no doubt, if brought into more general use, it would be found often materially to assist our diagnosis.

In the fatal cases which have come under my observation, this symptom of difficult respiration has gradually increased with the progress of the malady; and the child at last has appeared to die from suffocation, the pulse becoming very small and rapid, the extremities cold, and the breathing changing to a continuous rattle. This conclusion has taken place in the short space of 20 hours from my first visit to the patient, and 12 from the time the child was considered in danger; but I believe it has not in general happened till after the second day of the disease. Several of the elder children have complained of headach at the commencement, and pointed to the middle of the forehead as the seat of their uneasiness. The same children have likewise mentioned a pain in the chest, after the first symptoms were subdued; and in those of very tender age, if we may judge from their loud cries immediately on the back of the cough, it would appear they suffered acute pain from the agitation of the air passages. The oldest child treated by me has not exceeded four years; and the youngest has not been under two months. In the fatal cases which have occurred in my own practice, the patients have been from 3 to 7 and 8 months, and from all I have heard of the experience of others, it has proved infinitely more severe and destructive to the younger than to the elder subjects. Beyond the second year, I am not actu-

ally aware, that any child has died of it. For the most part, the victims of this peculiar epidemic have been fine infants at the breast, whose vigorous blooming appearance gave promise of a healthy childhood, and an immunity from the many ailments which the offspring of Europeans are liable to, during the period they remain in India. Relapses have been frequent, but have proved much milder than the original attack, and readily yielded to the means employed.

Where the case is to terminate favorably, I have generally observed, after the exhibition of medicine, a marked and speedy abatement of the symptoms. A moisture has broken out on the surface, and the breathing become free, with an evident expectoration of mucus attending the cough, although, from the sputa being in most cases swallowed immediately on being brought into the pharynx, their precise nature could seldom be ascertained. It is surprising what quantities of this excretion are poured forth from the bronchial vessels, after the first febrile paroxysm has been subdued; and doubtless the discharge is critical, and tends greatly to promote the cure of the disease. For several days the pulse maintains its hardness, though less quick and full; and an exacerbation of the febrile symptoms may still be perceived to occur once or twice in the 24 hours. These gradually become milder, and at length nothing remains but a loose cough, and a degree of weakness, which however in some of the children (as I afterwards found) has been extremely protracted

and difficult to remove. Where the case has been a violent one, and the child previously in high health, the eventual debility has appeared to be in the inverse ratio to the vigor of medical discipline employed.

## TREATMENT.

In the *treatment* of this epidemic, my practice may be summed up in three words, Leeches, Antimonials, and Calomel. The first I have employed with scarcely any exception; and where the fever and oppression of breathing are considerable, they ought never, I think, to be omitted. The situation is perhaps of consequence, and I have always directed them to be applied immediately above the clavicle near to its sternal extremity; the number of course to depend on the age of the child, and circumstances of the case, of which a medical man can alone be a judge at the moment. Even in infants I have found it necessary to repeat the topical bleeding; and notwithstanding the leech-bites have afterwards discharged so freely as to give the child quite a blanched appearance, and alarm the attendants, the effect has never been prejudicial; but on the contrary most salutary. After the leeches, or during their application, a solution of tartar emetic in water has been given in the dose of a spoonful or two every quarter of an hour, till free vomiting was produced. This generally brings up a quantity of a clear ropy mucus and watery fluid, to the manifest relief of the little sufferer. Supervening to the joint operation of these means, a disposition to sleep with a soft skin may be

considered presages of a favorable termination to the attack. Besides emptying the stomach, and relieving the bronchia, the antimonial solution has also acted on the bowels, and caused several motions before any other medicine was administered.

Here I have been guided by the state of the symptoms; but in most cases, after waiting two or three hours, I have directed the exhibition of calomel and antimonial powder at regular intervals, to be continued till purging took place, or an evident and permanent abatement of the fever and oppressed respiration was observed. From two to three grains of calomel, with one and half of antimonial powder, and a little pulv. glycyrrhizæ, added for the sake of bulk, form the ordinary dose In the majority of cases, this has been repeated from five to eight times, before the expected effect was fully obtained. The evacuations from the bowels after the exhibition of the calomel, &c. have been greenish, yellow, or bilious in appearance; and these last, which is peculiar, containing small dark coloured lumps. After the violence of the disease is broken by the means above mentioned, I have kept the bowels open, by castor oil, and moderate doses of jalap and scammony, or senna mixture; and for the cough and affection of the chest, I have usually directed ipecacuanha wine to be given every two hours, so as to keep the skin open, and excite a degree of nausea, where the oppression at the chest was at all considerable. Where the affection of the chest has assumed a chronic form, and after all febrile symptoms

have vanished, I have prescribed a mixture of copaiba balsam, syrup of tolu, and tincture of squills, repeated three or four times daily; but I cannot say I obtained any decidedly good effects from the remedy. A repetition of the emetic, either by means of the solution of tartarized antimony or vinum ipecacuanhæ, has been found useful in one or two cases, where the dyspnœa continued for a longer period than usual. In three or four, blisters were applied to the upper part of the chest, where the symptoms were unusually severe, and every means of relief urgently called for; but other remedies being employed, at the same time, it is difficult to pronounce what share they may have had in bringing about the favorable result. In many of the cases, the warm bath was also used, as an adjuvant to the other more active measures; and I need scarcely add, that the strictest antiphlogistic regimen was enjoined to the parents of the little patients, and the avoiding all exposure to a current of air from without.

## APPEARANCES ON DISSECTION.

Of the cases which proved fatal, I was permitted the examination of the body of one; and I shall now state the appearances in the chest; for that cavity was alone minutely inspected. The child was about seven months old, and like the others, had labored apparently under a slight catarrh for a day or two previous to my advice being requested. At the period of my first visit, the infant seemed pretty well, and did not appear to suffer from fever. One of the first teeth

being near the cutting, its illness had been attributed to that cause chiefly. The gums were lanced, and the antimonial solution was administered, more with a precautionary view, from a knowledge of the existence of the epidemic, than from any real necessity, at the time. Leeches were likewise ordered to be in readiness, and to be immediately applied in the event of the fever returning. The solution operated freely; and the child by account was much improved: a perspiration broke out, and it fell asleep. This was about 7 o'clock, P. M.: about 11, however, a severe paroxysm of fever, attended with great heat, and jactitation, came on, which, in the short space of an hour and a half, laid the child quite prostrate; and when I paid my second visit about 1 o'clock, the exhaustion was so great, that I found it necessary to administer a few drops of laudanum to restrain the disposition to purge, which had just come on. From this state there was no rallying; and it died, quite oppressed in respiration, about 8 o'clock in the morning.

On opening the trachea, a slight blush of red was found in the whole of the membraneous lining; but no adventitious membrane, as in croup, nor any *decided* marks of inflammation. The bronchia being laid open, there flowed out, from the division on the right side, a thin mucus, mixed with a whitish semipurulent sort of secretion; and the shoulder of the lung on the same side was dark colored, and a little thickened, as if extravasation of blood into the cellular substance

had commenced there. The lungs, when cut into, generally showed, that serum had been effused to a considerable extent into the cells; but beyond these there was no other morbid appearance. The abdominal viscera were quite healthy.

It is to be regretted that the post mortem examination was not made in more instances. Although the local appearances now described were not so conspicuous as might have been expected, we have to bear in mind that the fever was higher, and the determination to the chest not so striking in this case. From what was observed in the lungs and bronchiæ even here, there can, I think, be little doubt, that these were much affected; but whether primarily, or posterior to the fever, it is not easy to determine.

This epidemic, I find from inquiries since made, was not confined to the city and suburbs of Calcutta, but extended to many stations in Lower Bengal. It prevailed at Chinsurah, Burdwan, and Bhauleah; and cases of it were met with as high as Maldah. At Burdwan Mr. Coulter, the resident surgeon of the station, states, that "almost every European child was attacked with it; in some attended with very high fever, which seldom lasted above 24 hours." And he adds, what did not appear to have occurred here, "that the native children too suffered considerably; and that the adult natives of the district had fever similar to that of the children, with the difference, that in the former it was accompanied by a

troublesome ophthalmia; but though the sickness was great, the casualties were comparatively few." Though the kindness of my friend Mr. McPherson, of Bhauleah, I am enabled to add the following account of the disease as it came under his observation at that station.

---

*A few Observations on the Bengal Infantile Epidemic of* 1828.

No case of the epidemic, which proved so fatal to children from the age of six months to a year and a half, last rains, occurred at this station* till the middle of August, when a fine, stout, healthy little girl, nearly nine months old, was attacked and carried off, after fifteen hours' suffering from the time the symptoms became urgent. Another fine child, six months of age, was seized with the disease ten miles from this place, about the latter end of September, which proved fatal in ten hours from the period that feverish and other untoward symptoms first made their appearance. All the other children at the station and several in the vicinity suffered attacks during the month of September, but (with one exception) all of them were upwards of two years of age, and the active treatment that was had recourse to from the commencement, had fortunately the effect of checking, and ultimately removing, all dangerous symptoms, although in every case the little patients were sadly reduced, and did not regain their health and flesh for several months.

* Bhauleah.

The first symptoms, so far as my observations went, were merely those of slight catarrh, which remained with little or no alteration for three, four, or five days, and were not considered of importance sufficient to require treatment differing, in any way, from the simple measures usually had recourse to in such affections. Suddenly, and without any apparent cause, most violent fever, with intense thirst, restlessness, and startings came on, with a hoarse dry cough, and no expectoration, great oppression and difficulty in breathing, which conveyed the idea that the channel of the trachea was closed up,—a symptom which was now and then partially relieved by a slight tendency to vomit. The pulse was very full and remarkably frequent, the face *pale* and anxious, the eye watery, much troubled, and very sensible to the light. There was evident drowsiness and a great anxiety in the little sufferers to go to sleep; but in both the cases that terminated fatally, which came under my observation, neither of the children enjoyed rest for above a minute or two at a time, from the first appearance of danger; they were always disturbed either by cough or distressing attacks of suffocation, which, in the end, carried them off almost without a struggle.

The bowels were in the first fatal case above alluded to, quite healthy, and rather inclined to be loose, while in the younger infants, they were disordered and costive. Injections and purgatives acted freely, and produced some very offensive black and green evacuations, but no abatement of the fever or

inflammatory symptoms. The urine was in every case scanty and high colored.

Infants at the breast sucked, or took any nourishment that they had been accustomed to freely, and even greedily so long as the power of swallowing remained; whilst older children completely lost all inclination for food of any description, and could scarcely be prevailed on, for several days, to taste any thing stronger than gruel or toast and water. This difference, however, may, I imagine, with justice be attributed more to the desire the infant had to quench its thirst than to any wish for food.

With regard to the cure, after the disease has fully developed itself, I have nothing new to offer; indeed the violence of the symptoms will suggest to every medical man the urgent necessity of having immediate recourse to the most active practice likely to check inflammation, and the determination so apparent to the bronchiæ and lungs: but were this fatal disease again to become prevalent, (which I sincerely hope may not be the case,) I should feel strongly inclined to adopt preventive measures, particularly with children under two years of age, by the use of antimonials, calomel, blisters, and even leeches, if thought necessary, on the *very first* appearance of catarrhal symptoms. I can easily imagine the difficulty a medical man would at first encounter in attempting to convince parents and relations of the necessity of subjecting their children to a mode of

treatment, which present symptoms did not appear to warrant; but were it to prove efficacious, these objections would soon be got the better of, and many children saved; for I believe it will be generally admitted that, last year, when this epidemic raged with such violence throughout Bengal, the most approved treatment affected comparatively few cures in *young babies* where the symptoms ran high; indeed the medical man was seldom called in till fever, and difficulty of breathing supervened, or in other words till the danger was most imminent.

I am totally at a loss to assign any cause for the prevalence of this disease. There was, however, one thing remarkable in the weather, which I think worthy of notice. The wind during the rainy months in Bengal blows almost invariably from the east or south east; but during August and September last year, it was generally southerly or easterly, with hot sultry days, and strong gales at night.

(Signed) G. G. McPHERSON.

---

This fever which occurred at Bhauleah, so accurately described by Mr. McPherson, will at once be recognized as corresponding in almost every feature with the Calcutta epidemic. Although in point of time it occurred some weeks later, yet I cannot entertain a doubt of their identity. How far the disease was communicable by contagion, I am at a loss to say. From my own experience, I should be inclined to doubt this conclusion. That it owed

its origin to some very general cause acting on the *tender European* frame, appears obvious from the whole history of the malady. No native children, that I am aware of, labored in any serious degree under a similar affection. There may have been instances of catarrh at the time, but the subsequent fever was wanting ; and the generally fatal result was not observed to occur in the latter class. We know, it is true, but little of the state of health of the native population under ordinary circumstances ; but when sickness presents itself in an epidemic form, and more especially when the consequences of this are in many cases fatal, the existence of the disease is speedily communicated to the European community. Compared then with the latter, the natives suffered little or nothing from the visitation in question; and in considering the causes of the malady, we must always bear in mind this remarkable disproportion.

Among European children very few escaped, not one out of a hundred, as I stated at the commencement of the paper. The proportion of deaths was likewise very great, as will appear from the following statement of the number of children and infants interred in the Park Street Burying Ground, for the months during which the disease prevailed in 1828, compared with the three preceding years. The subjoined extracts from the obituary lists published in the Government Gazette for the same period will furnish a further confirmation of the fact.

*Number of interments of young children and infants in the Park Street Burying Ground, during the months of June, July, and August, for four years, or from* 1825 *to* 1828 *inclusive.*

| | | | | | |
|---|---|---|---|---|---|
| June, | July, | and | August, | 1825 ... | ... 25 Casualties. |
| Do. | do. | | do. | 1826 ... | ... 23 do. |
| Do. | do. | | do. | 1827 ... | ... 21 do. |
| Do. | do. | | do. | 1828 ... | ... 49 do. |

*Extract from the obituary list of the Government Gazette, showing the number of casualties during the above period in children, under four years of age.*

| | 1825. | 1826. | 1827. | 1828. |
|---|---|---|---|---|
| June, | 9 | 7 | 6 | 4 |
| July, | 3 | 3 | 11 | 31 |
| August, | 15 | 3 | 9 | 24 |
| Total, | 27 | 13 | 26 | 59 |

It is peculiar to the epidemic now described, that it should occur as such in subjects of tender years, and be exclusively confined to them. In the history of Indian disease, so far as I am acquainted, we have no precedent to compare with it. The exanthemata are occasionally prevalent among all classes, but a fever so marked by local determination, and very fatal issue, must be held not only novel in this country, but rare, or without record even in Europe. From whatever cause it originated, the disease has proved too serious in its consequences, by depriving many a fond parent of their beloved offspring, to be overlooked; and I trusted the plain but faithful relation I have endeavored to give of its

progress and more striking characters, may prepare us hereafter to combat it with greater success, should we be doomed to witness another visitation of the calamity. There is little doubt, had the real nature of the affection been early suspected, and active measures resorted to by way of precaution, that in many instances children would have suffered only in a slight degree, who were eventually carried off by it.

*Morbid enlargement*
*of the Skin of a Native of Jillah*
*Furreedpore Bengal.*
*Front View.*

*Morbid enlargement*
*of the skin of a Native of*
*Jillah Fureedpore Bengal*
*back view)*

# CASE

OF A

# SINGULAR ENLARGEMENT

OF THE

# SKIN AND CELLULAR MEMBRANE IN A NATIVE OF BENGAL.

(WITH TWO DRAWINGS.)

By J. ADAM, M. D.

*Presented June,* 1828.

KHALEE MITTEE, a native of Zillah Fureedpore, Bengal, a youth of 16 years, of middle stature, and general healthy aspect. The whole of the left thigh, from the groin and head of the femur to below the knee, (with the exception of a line not exceeding two inches and half in breadth at the back part,) is affected with disease of a peculiar character. The natural smoothness and olive or chestnut colour of the Bengallee skin, is changed into a dark pendulous mass, resembling a toad's neck, or the texture of the scrotum. It envelopes the thigh, and hangs down interiorly, forming large folds at the inner and lower parts of the member, with corresponding rugæ or wrinkles.

On the upper and outer part, and immediately above and surrounding the knee, and along the line of demarcation, between the sound and diseased parts behind, this peculiar structure is covered with strong black crispy hair, like that of the beard or whiskers. The mass is pretty firm on the outer part of the thigh, but becomes more flabby and loose, as it approaches the inner part, where, (as represented in the drawing,) it hangs down all the way from near the groin to the knee. In this line, and more particularly at the upper part, hard globular-shaped bodies, and one prominently larger than the others, may be felt involved in it, which are painful when pressed or grasped firmly, and appear to be enlarged absorbent glands.

The general feel of the mass is that of a semi-doughy, semi-elastic texture, with small knotty or cord-like bodies between the fingers when a more than usual degree of pressure is employed. At the lower and outer part, the line separating the sound and morbid parts is abrupt, and strongly defined; the elevation from the natural cutaneous texture into the enlarged mass being quite perceptible by the finger and eye: but above on the dorsum of the ilium, and along the groin, the change is gradual, and is more indicated by the alteration in the color than any remarkable circumstance in the texture. This continues for an inch or two, when the skin swells a little, and becomes darker, and the small depressions or foveolæ at the roots of the hair

become larger. The third ruga or wrinkle from the top, which is situated within five inches or four and half of the knee, divides the mass into two principal portions, differing however in no respect, excepting that the upper one contains the enlarged glands above described, while there is more of the strong hair covering the lower portion.

A sensation of itching occasionally occurs in the diseased part, which sometimes increases to an almost intolerable degree. To the friction used at various times to relieve this sensation, he ascribes the comparative smoothness and freedom from hair at the upper and forepart of the thigh, there having been, he declares, the same kind of hair in that situation as at the posterior and lower parts. In walking he experiences no inconvenience, but what arises from the increased bulk and weight of the limb. He states, that there has been some peculiarity of the limb ever since his birth, but at first it was of small extent; that a tumor formed and suppurated, which was opened by a native practitioner, or *hukeem*, and that after the matter was discharged, the part healed kindly. Soon after this the skin of the thigh swelled to a great size, and the peculiar appearance which is now presented gradually supervened.

There are several circumstances connected with this case, which appear to me to deserve attention. I have not above alluded to one very remarkable peculiarity, namely the increased temperature of the

morbid texture. This is quite evident to the naked hand; the diseased limb feeling warm, while the sound skin of the opposite member gives an impression of cold when touched. On carefully applying the thermometer on different days, I found this increase to be uniformly three degrees of Fahrenheit. The enlargement of the absorbent glands, and the growth of the strong bristly hair, are likewise deserving consideration. From all I can observe of the case, it appears to be essentially the same as that described by me in the first volume of the Society's Transactions, in the person of a native of Jessore, where the whole cutaneous texture was in some degree involved, but the principal change was confined to the neck of the individual. In a review of that volume in the Edinburgh Medical and Surgical Journal, the Editor notices the case, and terms the affection a "hypertrophy" of the skin; but if by this phrase is meant simply an excessive increase of the cutaneous texture, I must object to it, as, besides the enlargement, there is in both the cases now alluded to an obvious change of structure. The skin is thickened;—the temperature of the surface augmented;—the absorbent glands are enlarged;—and there is a totally new production in the growth of hair which, of the kind described, is under ordinary circumstances confined to the face.

With regard to the treatment adopted in this case, it appeared almost hopeless to attempt any relief from medicine. Frictions with camphorated oil

were continued for some time, with occasional doses of Plummer's Pill. Under these, the skin certainly became smoother and thinner, and the glandular swellings diminished in size. Afterwards pressure uniformly applied, by means of adhesive straps, was resorted to and persevered in for many weeks, but I cannot say with any visible improvement. At present the inconvenience arising from the disease is not so great as to demand the application of the knife; but should the morbid structure continue to increase, it may hereafter be advisable to remove a portion of the mass, where it is most prominent and pendulous.

A

# SHORT ACCOUNT OF THE CLIMATE

OF THE

# DEYRAH DHOON.

By the Hon'ble F. J. SHORE.

*Presented July* 5, 1828.

THE climate of the valley partakes somewhat of that of Bengal proper, but is modified by being more elevated above the sea, and in a higher latitude. Taking the year throughout, it may be a little cooler than the plains. The cold weather commences a little earlier, and lasts a little longer than in the plains; but there are none of those very cold westerly winds in the morning, which are sometimes experienced there: the atmosphere contains much more damp. The rains commence a few days earlier, but end about the same time; they are not so heavy whilst the rain actually falls, but are much more continued: in an ordinary rainy season, there are rarely, if ever, two days together without rain. There are usually two or three days heavy rain, about the end of December, or be-

ginning of January; again in February, in March, and in the beginning of April. A shower now and then in May and June. During the three last mentioned months, hail often accompanies the rain. The rains have been mentioned. A day or two of rain usually about the end of October or beginning of November. Almost always in January and February, often in March, and sometimes April, when rain falls in the Dhoon, snow falls on the second range of hills; it has been known to fall in the Dhoon: it fell and laid for one night in the month of February 1814; but this only occurs perhaps once in the memory of man. There are no *hot winds*, but the sun in summer is exceedingly powerful; as a compensation for which, every evening at sunset, a cool breeze sets in from the hills, and lasts all night.

2.—The following are taken from a journal kept by the civil officer in charge of the Dhoon. The year commencing from the 1st February 1823, to 31st January 1824, was an ordinary one. The second ending 31st January 1825, and the third ending 31st January 1826, were both unusually dry, and consequently hot years. The fourth ending 31st January 1827, was rather a wet year: so by taking the first, third, and fourth years, a tolerable average may be made, according to which is the following.

| Months. | 1st Feb. 1823, to 31st Jan. 1824. | | | | | 1st Feb. 1825, to 31st Jan. 1826. | | | | | 1st Feb. 1826, to 31st Jan. 1827. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Days on which rain fell. | | No rain. | | | Days on whch rain fell. | | No rain. | | | Days on which rain fell. | | No rain. | | |
| | Very cloudy. | Partially. | Very cloudy. | Partially. | Fine. | Very cloudy. | Partially. | Very cloudy. | Partially. | Fine. | Very cloudy. | Partially. | Very cloudy. | Partially. | Fine. |
| February, | 4 | 5 | 3 | 7 | 9 | 7 | 3 | 3 | 12 | 3 | 3 | 0 | 2 | 11 | 12 |
| March, | 3 | 3 | 3 | 11 | 11 | 3 | 1 | 3 | 13 | 11 | 5 | 5 | 2 | 14 | 5 |
| April, | 1 | 2 | 3 | 7 | 17 | 0 | 4 | 0 | 4 | 22 | 2 | 5 | 3 | 9 | 11 |
| May, | 3 | 3 | 2 | 4 | 19 | 6 | 1 | 2 | 5 | 7 | 2 | 7 | 1 | 12 | 9 |
| June, | 1 | 3 | 7 | 7 | 12 | 3 | 6 | 3 | 5 | 13 | 17 | 5 | 1 | 5 | 2 |
| July, | 18 | 12 | 0 | 1 | 0 | 11 | 11 | 1 | 8 | 0 | 16 | 11 | 1 | 2 | 1 |
| August, | 15 | 12 | 0 | 4 | 0 | 8 | 13 | 0 | 10 | 0 | 13 | 11 | 3 | 4 | 0 |
| September, | 4 | 13 | 1 | 3 | 9 | 3 | 10 | 1 | 13 | 3 | 8 | 4 | 4 | 7 | 7 |
| October, | 1 | 2 | 2 | 6 | 20 | 0 | 1 | 3 | 12 | 15 | 0 | 3 | 1 | 19 | 8 |
| November, | 3 | 0 | 0 | 7 | 20 | 1 | 0 | 3 | 5 | 21 | 1 | 0 | 3 | 4 | 22 |
| December, | 1 | 2 | 4 | 12 | 12 | 0 | 0 | 4 | 7 | 20 | 4 | 0 | 5 | 15 | 7 |
| January, | 1 | 1 | 4 | 12 | 13 | 0 | 3 | 7 | 7 | 14 | 5 | 2 | 4 | 6 | 14 |
| | 55 | 58 | 29 | 81 | 142 | 42 | 53 | 30 | 101 | 139 | 76 | 53 | 30 | 108 | 98 |
| | 113 | | 110 | | | 95 | | 131 | | | 129 | | 138 | | |

Average of the three years: Days on which rain fell. Very cloudy ditto, $57\frac{2}{3}$; Partially ditto, $54\frac{2}{3}$; $112\frac{1}{3}$. No rain. Very cloudy ditto, $29\frac{2}{3}$; Partially ditto, $96\frac{2}{3}$; $126\frac{1}{3}$. Fine. $126\frac{1}{3}$. Total 365

3.—Unfortunately no one in the Dhoon has a pluviometer, or probably the difference between the quantity of rain fallen in different years, would be more than appears by merely comparing the number of days on which it fell.

4.—On the whole, the climate is much more damp than that of the plains: and to this dampness and continued cloudy atmosphere in the rainy season,

and occasionally throughout the year, more than to the quantity of rain that falls, it may probably be attributed that the different sorts of rice thrive so well.

5.—In the hot weather there are many days in which a fleecy haze, partially, or totally covers the atmosphere: this, although sufficient to prevent some fruit from ripening, is not such as to be called clouds.

6.—It may be mentioned, that owing to a rainy squall coming on suddenly in the hot weather, the transitions are sometimes very great and sudden. On one occasion of this sort the thermometer fell 23° in one hour.

7.—Thunder is much louder than in the plains; it frequently lightens: during the last four years not less than five houses have been burnt from that cause, in and about the cantonment at Dherah, where it seems to fall more than in any other part of the Dhoon. Concerning lightning, the people in Gurhwal bordering on, and in some parts of the Dhoon, have an extraordinary idea; that if any person, standing close to a spot where the fluid strikes, should be able to throw water on it, it would then rise to the heavens, (which they believe it to do,) and the person would find on the spot a lump of gold about a cubit long, and as thick as a man's arm. Earthquakes happen occasionally. They are usually very slight; and that in July 1803, is the only severe one

on record. Part of the Sikh temple was thrown down, and many of the walls cracked, which remain so to this day.

8.—The cleared parts of the Dhoon are healthy enough, but the jungly parts are very much the contrary.

9.—A register of the thermometer has been regularly kept for more than a year. It is taken five times a day, viz. at just after day break; at 10 A. M.; at 12; at 3 P. M.; and at 10 P. M. The thermometer hangs in an open verandah, facing a little to the eastward of north.

10. It may be observed, that in some months the average of the observations at 12, is higher than of those at 3 P. M.

11.—The following general average is deduced from observations at four periods; viz. of the coldest. i. e. just after day-dreak; of the hottest, whether at 12 or at 3 P. M. whichever should be so; of 10 A. M. and 10 P. M.

*General Average.*

| | | |
|---|---|---|
| 1826. | August, | 78¾ |
| | September, | 78¼ |
| | October, | 73 |
| | November, | 64 |
| | December, | 56 |
| 1827. | January, | 53¼ |
| | February, | 59¼ |
| | March, | 65¾ |
| | April, | 73¾ |
| | May, | 82 |
| | June, | 84 |
| | July, | 82¾ |

*Table showing of each month, the highest, lowest, differ.*

| | | | | |
|---|---|---|---|---|
| 1826. | August, | 90 | 72 | 18 |
| | September, | 91 | 66 | 25 |
| | October, | 86 | 61 | 25 |
| | November, | 70 | 44 | 26 |
| | December, | 71 | 42 | 29 |
| 1827. | January, | 68 | 37¾ | 30¼ |
| | February, | 73 | 45 | 28 |
| | March, | 86 | 48 | 38 |
| | April, | 93 | 53 | 40 |
| | May, | 98 | 64 | 34 |
| | June, | 101 | 71 | 30 |
| | July, | 94 | 72 | 22 |

Average of the whole year $70\frac{5}{6}$.
Highest 101, on 7th June, at both 12 and 3 P. M.
Lowest $37\frac{3}{4}$, on 4th January, at day-break.
Great difference $63\frac{1}{4}$.

11.—Although not strictly speaking connected with the Deyrah Dhoon, it may be interesting to know the temperature of some other parts.

12.—The court is held during six months of the year in the hills of the Sreenagur division; during part of which time it is moving about, and part stationary at Păoree, a village on a hill near Sreenagur; estimated to be something more than 6000 feet above the sea.

14.—The following average of observations at four times in the day, similar to the foregoing, is here given.

For 1827, July $73\frac{2}{4}$ N. B. The observations for the 4th, 5th, 6th, and 7th July are wanting.

Augt. 73
Sept. $70\frac{3}{4}$ } Whole months complete.

From what little judgment I can form, I should imagine that Mussooree hill, where Government are now forming an invalid station, would be rather cooler than Păoree.

ON THE

# OPERATION FOR CATARACT,

## UNATTENDED BY THE NECESSARY INFLAMMATION.

By E. W. W. RALEIGH, Esq.

*Presented July 5, 1828.*

MOST authors on the diseases and operations to which the eye is subjected, have in a clear and precise manner laid down rules for the preparatory and after treatment considered requisite in Europeans, who are about to undergo, or have undergone any of the different operations performed on this organ. By them our efforts and the remedies proposed, are (as far as I have had an opportunity of observing) generally directed towards the prevention or reduction of that formidable enemy, when exceeding the necessary and healthy bounds, inflammation. Although writers mention the probability of cases occurring in old and enfeebled individuals, where there is a want of sufficient inflammation to occasion the vessels to throw out adhesive matter to unite the edges of the divided cornea after the operation for extraction, and indeed notice cases in confirmation; yet it is evident, from the manner in which they express themselves, that such occurrences are rare in Europe.

The disinclination which the native Indian constitution has to take on an excess of inflammation is proverbial. Yet the extraordinary power it has of repairing injured parts, particularly incised wounds inflicted on healthy structures, is not less so; consequently, the supposition of the native constitution being more incapable of regenerating destroyed structures, or of producing reunion of divided ones, than that of the European, would appear rather inconsistent. Without, however, pretending, from the scanty opportunity I have had for observation, to hazard an opinion as to the power of maintaining this peculiar state of equilibrium in the native habit, I proceed to submit three cases of extraction of the lens, where, from want of power or indisposition in the constitution to take on inflammatory action, formidable obstacles to successful terminations presented themselves, and pointed out the necessity which exists, particularly in the native Indian, for duly taking into consideration the state of the constitution, its power of sustaining and repairing injuries, previous to this operation. At the same time, wishing to be clearly understood, that I conceive the operation for extraction possesses the same advantages over those performed with the needle in the Native as in the European, and should always be preferred where circumstances are favorable to its performance.

For the opportunity of operating on the first case, I am indebted to the kindness and liberality of Dr. James Watson, Garrison Surgeon of Allahabad.

Nov. 5th, 1826.—The subject, a native, about 55 years of age, rather infirm, having a hard lenticular cataract, with the exception of the anterior chamber being shallow from the lens protruding the iris: the eye and adjacent parts offered no obstacle to the operation. Belladonna was applied at night; and on the following morning, the operation for extraction was successfully performed. The lens came out without any violence; not a particle of vitreous humour escaped; the pupil regained its circular figure, and the divided edges of the cornea closely adapted themselves. As I left Allahabad on the following morning, Dr. Watson took charge of him. Hearing some time after that the case had failed, I wrote to Dr. W. stating my unwillingness to credit the report, as I could imagine no other cause than expulsion of the contents of the globe from improper exertion of the patient, or excessive inflammation. I stated the supposition I entertained of one or other of these unfortunate circumstances having taken place. His answer was as follows: "I attribute the failure, not to the operation, which I conceive could not have been better performed, but to the age and constitution of the patient. So far from there being any inflammatory action, the eye seemed to perish for *want* of action, the cut edges of the cornea continued in close connection; no protrusion of vitreous humour, still the aqueous chamber did not fill, the cornea became flaccid,dim,and gradually opaque; after a time slight chemosis appeared, which a few leeches removed, and was followed by a sinking

of the whole globe; he complained of no pain; constitution as good as before the operation." Dated February 14th, 1827.

Although I had several cases of extraction in the intermediate period, I met with no similar occurrence until July 4th, 1827.

## CASE II.

Narain, a native, Ætat. 50, blind 10 years; right globe collapsed; applied belladonna over the left.

5th.—Pupil dilated, exhibited a hard lenticular cataract, some fine striæ of adhesions of the uvea to the anterior capsule: extracted the lens; it had a brown nucleus and amber-colored circumference. The operation in every respect successful; on raising the lid to see if the pupil had assumed its circular figure, which it had done, the man said he saw me clearly.

6th.—A. M. Aqueous humor secreted so as to fill the anterior chamber; no pain, nor is there any sign of inflammation; the lower part of the flap of the cornea looks nebulous; iris dilated; pupil regular. At 6 o'clock, P. M. no inflammation nor pain; does not see my hand held before the eye; edges of the divided cornea in perfect contact.

7th.—A. M. The same want of power and excitement, as yesterday; the eye has the same appearance, with exception of the flap of the cornea being rather

more nebulous; he distinguishes light, and knows when the hand is held, so as to intercept it. Conjunctiva free from red vessels. In order to excite inflammation, I dropped on the globe, beneath the upper and under palpebræ, about twenty grains of common black pepper (ground), which produced a profuse flow of tears, and applied a poultice of bread and water, in which was mixed a large spoonful of the same ground pepper over the eye-brow, temple, and cheek; and administered Sulph. Quinæ: grs. ii. Ext. Conchonæ grs. v. every four hours. At 8 o'clock, P. M. scarcely any increase of action produced; dropped some fresh grains of pepper into the eye, removing those put in on the morning; and renewed the pepper poultice, increasing its strength.

8th. Slight inflammation has come on; removed the grains of pepper from beneath the lids; continued the poultice.

9th. Inflammation has increased; complains for the first time of pain and sensation of burning; continued the poultice.

10th. Conjunctiva covered with red vessels; complains of much pain; discontinued the poultice, and persisted in the use of the tonic medicine: from this period adhesion of the edges of the divided cornea rapidly ensued; the case pursued a regular course, and good vision was restored.

## CASE III.

*Occurred at Barrackpore.*

*Nov.* 17, 1827.—The subject, an old native woman of healthy appearance; by her own account about 55 years of age, though she did not seem to be decided on the point; blind three years. On dilating the pupils, the lens in each eye appeared of a dark amber color, and evidently formed hard cataract.

18th.—Operated for extraction of each lens, with perfect success; no vitreous humour escaped; the pupils became circular, &c.

19th.—A. M. Cornea dull, and slightly indented; the anterior chamber had not filled; the conjunctiva nearly free from red vessels; no pain.

20th.—Same appearances as yesterday; lower part of the cornea, forming the flap, nebulous; dropped a strong solution of the nitrate of silver on the globe; and applied a pepper poultice over the eye and adjacent parts.

21st.—Complained of pain and smarting; vessels of the conjunctiva filled with red blood, and active inflammation excited; discontinued the stimulants, and applied wetted lint and light bandage; the inflammatory action did not exceed the necessary limit, and the case gradually proceeded to a successful

termination. About three months after the operation, her vision was as good as it ever is without the aid of a lens, natural or artificial.

From the opportunity which a moderate experience has afforded, I have formed the following opinions.

1st.—That, although the operation for extraction of the lens, if successfully performed, affords the most satisfactory results in Europeans, and natives of healthy robust constitution, in those of an enfeebled and debilitated habit, whether from age or disease, the operation for absorption or depression is preferable.

2d.—That in cases where extraction has been performed, and is not followed, in the course of 24, or at most 36 hours from the period of operating, by the necessary inflammatory action,—on the contrary, the vessels of the Conjunctiva covering the globe, as well as those of the Scelerotica, continue in nearly the same state as before the operation; the divided part of the cornea, forming the flap, appearing nebulous, and the anterior chamber not becoming filled with aqueous secretion;—local as well as constitutional stimulants should be had recourse to, and persisted in, until active and sufficient inflammation is produced to throw out adhesive matter to unite the divided cornea. No fear need be entertained of inflammatory action, thus produced, in such a constitution; from the moment the exciting cause is removed it gradually declines.

*Case of Absorption of a fleshy Pterygium, produced by the Operation for Extraction of the Lens.*

Feb. 10, 1828.—A native, named Jeandee, states his age to be 70 years, a gardener on the Governor General's Barrackpore establishment, enjoying a pension as a superannuated servant; in the right eye, a dense hard cataract, the left incipient, allowing of faint vision; state of general health good. The nasal surface of the globe of the right eye was covered by a thick, fleshy pterygium, which encroached about a line on the transparent cornea, and rendered about two lines in width opaque; the upper, outer, under, and central points of this membrane were clear. After dilating the pupil, a section was made of the *outer* half of the circumference of the cornea, through which the lens was extracted. The operation was perfectly successful; and he went on well under my care for about ten days. Circumstances prevented my seeing him until April 21st, at which period good vision was enjoyed, and to my surprise the pterygium was entirely absorbed.

# REMARKS

ON

# THE CLIMATE OF MULLYE.

By J. TYTLER, Esq.

*Presented Sept.* 1828.

In the beginning of the year 1819, I was sent to take medical charge of the Chumparun Light Infantry Battalion, stationed at Mullye, on the northern side of Tirhoot. There I remained for three years and a half, during which time my health suffered exceedingly from the climate, and I was obliged to witness the sickness and death of many around me from the same cause. These circumstances induced me, shortly after leaving the station, to draw up a few memorandums respecting its natural appearances; and these I now venture to submit to the Society, in the hopes that they may possess some small interest, as relating to a part of the country hitherto but imperfectly described and little known.

The cantonments of Mullye are situated about 100 miles almost due north of the city of Patna, and are consequently on the utmost verge of the Company's territory, where it joins with that of Nepaul, in the northern part of the probably alluvial valley of the Tirhaee. Mullye itself is an insignificant

village close to the rear of the cantonments. About 25 miles farther north, is the first range of the Nepaul hills, and beyond them a series of intermediate ranges of increasing altitude, which finally, at an unknown distance, are overtopped by the supreme mountains of Thibet, covered perpetually with inaccessible snow. The foot of the first range, that is, the Northern limit of the Tirhaee, is skirted all along by the great forest of Saul trees, the breadth of which is said to vary from 5 to 20 miles.

To the south of Mullye is the fertile district of Tirhoot, which extends all the way to the Ganges. To the west lies that of Chumparun; but as I am not exactly acquainted with the precise boundaries between these districts, and as, united, the three comprehend the whole tract from the Ganges to the Nepaul hills, so I shall include them all under the one name of Tirhoot, which is by far the best known, most populous, and most important.

The whole of this country is very flat and marshy. The principal rivers near Mullye, are the Gunduck and Bhugmutty; each of these approaches the cantonments within 10 or 15 miles: and besides these, innumerable smaller streams intersect the ground. Large irregular patches of woods are also distributed over its surface, particularly towards the north, where cultivation is more imperfect; and occasional large processes or arms stretch southward, from the great mass of vegetation in the Saul forest.

Towards the Ganges, Tirhoot, as above defined, is well cleared and cultivated. Even there, however, occasional wastes and jungles appear. These increase much in frequency toward the north and the mountains. All eatable grains, such as rice, maize, the coarse pulse called Dhal, &c. are largely cultivated. Besides these, the castor oil plant and indigo thrive extremely well; and Tirhoot is one of the principal districts in India for their cultivation, and the manufacture of the oil and the dye. But with respect to vegetation in general, the country must be contemplated under two aspects: its appearance during the rainy season, and, in opposition to that, during the cold and dry weather. In the two latter seasons it does not seem particularly overloaded with plants, but the rains produce a rapid and enormous change. Then the extent to which all sorts of vegetables augment themselves, even in a few days, is immense; and the utmost efforts of labor, solely directed to that object, are scarcely sufficient to oppose their magnifying power. Plants which during the hot weather were insignificant dwarfs, and weeds which only exhibited the appearance of a few withered strings, suddenly exalt themselves to trees of ten or twelve feet high, covered with a profusion of foliage, and loaded with ponderous masses of broad leaved creepers. Jungles, thickets, and grain fields, seem to rise as if by enchantment. They cover the whole prospect, block up the roads, and extend and plant themselves at the very doors and windows of the Bungalows.

Tirhoot is one of the principal districts in India for the manufacture of saltpetre: the soil is every where abundantly impregnated with this substance, and it floats in the atmosphere in such quantities, that during the rains and cold weather it is attracted from thence by the lime on the damp walls of houses, and fixes there in the shape of long downy chrystals of exceeding delicacy. From damp spots it may be brushed off every two or three days almost in baskets full. In consequence of all this, the ground even in the hot weather is so damp, that it is extremely difficult, either to get earth of sufficient tenacity to make bricks, (the country being quite destitute of stones) or when made to find a spot sufficiently solid to sustain the weight of a house. Even with the greatest care the ground at last yields, and the saltpetre corrodes the best of the bricks to such a degree, that the whole house gradually sinks several inches below its original level. Houses built of inferior materials, of course suffer much more: one, of which the inner foundations were of unburnt bricks, absolutely fell down, whilst I was at Mullye, and the family in it escaped almost by miracle. My own house, which was not much better, sank so much, and the walls were at bottom so evidently giving way, that I was compelled, with extreme expence and inconvenience, to pull down the whole of the inner walls, and build them afresh in a more secure manner. From the same cause, a new magazine which Government directed to be built with an arched roof of brickwork, was, when complete,

found so very unsafe, that it was necessary to demolish it entirely, and rebuild it on a new plan with a roof of tiles. In such a soil it will easily be concluded, that swamps and lagoons prevail very much; of course, mostly during the rains, and till the sun gathers power in the hot weather: and in fact, what has been above so much insisted on, as to the two contrary aspects of the country with respect to vegetation, may by a conversion of terms be equally applied to the water on its surface. In the cold and dry weather it is comparatively scanty, in the rains it is superabundant; and as the rivers in this district are frequently found to change their situation, so through a long course of time it has resulted, that hollow beds being deserted by their streams, become transformed into what during the rains assume the appearance of extensive lakes, but in the dry weather degenerate into mere muddy swamps, overgrown with a profusion of rank aquatic vegetation, particularly the gigantic leaves of the lotus, and swarming with every tribe of loathsome cold-blooded animals. Some of these lakes, during the height of the rains, communicate with their original streams, and thus undergo a temporary purification; but others receive no fresh supply except from the clouds, and of course their condition is by much the worse. Some of the conversions of a river bed into a lake, have occurred in the memory of the present inhabitants, or at least within one descent from their ancestors.

The most considerable changes which take place in the atmosphere, are during the hot weather, and commencement of the rains. At these seasons, the northern parts of Tirhoot particularly, are subject to sudden and most terrific storms. During an oppressively hot day, with the thermometer at 96 or 98, black and heavy clouds suddenly appear forming in the horizon, and in an hour or two they advance so as to overspread the whole sky, and all at once pour down a tremendous hurricane of wind, thunder, lightning, rain, and in the beginning of the hot weather occasionally also of hailstones of very large size, some almost as large as a hen's egg. By this in a quarter of an hour the temperature is reduced 15 or 20 degrees. The tempest seldom however lasts more than two or three hours, often not so long, and the thermometer soon afterwards recovers its former height. Such hurricanes happen at all hours both of the day and night, but I think more particularly about sun-set. On their occurrence the hopes of the cultivators are blasted in a moment. The fields of the young Indigo are laid waste; the mangoe groves (which fruit supplies to the natives a large share of their summer food) are strewed with the blossoms shaken from the desolated trees, and the various crops of grain are all destroyed. After this, it may seem insignificant to add, that the trees in European gardens, which in the afternoon exhibited the most luxuriant appearance of grapes, plums, peaches, &c. in the morning are found totally stript both of fruit and leaves; many trees broken off by the stem, and scarcely one with-

out the loss of some of its branches. The nights are pretty cool; during the hot weather they are by far the most agreeable part of the twenty-four hours: and in this respect the climate of Mullye is more tolerable, than that of most other parts of India. The prevailing wind above all others is east inclining to south; it blows perhaps 300 days in the year, and is generally violent: long exposure to its blasts, particularly when asleep in the day, or during the night, is exceedingly pernicious; and sure to terminate, in constitutions at all liable to these diseases, either in fever or intolerable rheumatism. The season when the heat is most oppressive, is during such intervals of the rains as are clear and bright. The days are then at the longest, and the atmosphere so exceedingly transparent, that the sun is intolerably powerful almost from the moment of his rising to that of his setting. On such occasions, too, the wind is generally hushed. During the middle of the day, when the vapors are elevated in the air, and most people endeavour to remain at home darkened by venetians and cooled by the punkah, the influence of such weather is less perceived; but towards sun-set, when a little comparative coolness begins, (and what wind there may have been generally ceases altogether then) the exhalations from the whole surface of the ground, almost resemble those from a pot of boiling water. On going out, which the whole day's confinement renders absolutely necessary, the feeling of closeness and suffocation from the hot vapours, is most oppressive and debilitating; and I have on such occasions been

so perfectly exhausted of animal power, as almost rather to imagine myself in a trance or heavy dream, than in real existence. Remaining out late at night exposed to the dew, and particularly sleeping in the open air, is most pernicious and fatal.

As the bad effects of sleeping exposed to currents of wind, have not I think been sufficiently insisted on by writers on the diseases of India, it may perhaps be as well, if I make a few remarks on a practice which to me has always seemed productive of the most deleterious effects. There are two circumstances, which enable this treacherous cause of disease to conceal for some time its powers of injury. It is, in the first place, so exceedingly agreeable and apparently refreshing, after an intensely hot day, either to sleep out of the house altogether, or between two open windows, through which the east wind is passing, that it is scarcely possible to persuade an invalid that any harm can follow. In the next place, on persons newly arrived from Europe, who yet possess unimpaired their original vigour of constitution, this practice really does not produce much injury; and hence few temporary residents in India, would think of reckoning it as a cause of disease. It is at last, after two or three years, when the strength of Europe begins to dissolve in the Indian sun, that a continuance of this habit is followed, first in the mornings by an extreme sense of languor and debility, which is hardly recovered from during the whole day, and next, if persisted in, by severe rheumatism or

fever. Few on their first arrival were more addicted to this practice than myself, and it was only irresistible experience that compelled me to abandon it. From this cause the natives are frequently affected with what, in familiar language, is called a stroke of the wind. They awake in the morning with a partial paralysis of some muscle. Their lower jaw may be turned to one side, or their elbow joint stiffened. Over this accident medicine seems to have no control, but the effects gradually diminish and disappear in six or twelve months. The same thing often occurs too among Europeans, particularly if their habits be intemperate, and if after an evening's debauch they go to sleep on a couch in the open air. Upon the whole, were I to rank the causes of disease in India in the order of their influence, I would in the first place put exposure to the sun during the day, and in the second exposure to the night air during sleep. It must not be understood from hence, that I recommend bedrooms to be closely shut up. On the contrary, the free access of the fresh external air is essentially necessary; and if not admitted, persons awake in the morning in their confined air heavy, stupid, and languid: but it is equally so, that the wind and the dew should be excluded. Thus, if the wind be to the east, the bedroom should be on the west side of the house, the passages to the east shut up, and those of the west open. In the hot weather the western windows may be entirely open; but in the rains, it is far safer only to raise the moveable wooden bars of the venetian

blinds. The rule in short is, to have the bedrooms open to the air, but shut from the wind and dew. Many persons have a punka pulled over their bed all night, and though this may appear pretty much the same as a draught of external air, yet in reality it is found far less deleterious. I shall give one strong case in illustration of all I have said above, as well as of Indian habits in general.

In the month of May, after an extremely hot day, a small party assembled at my house to tea. One of the guests was a young Subaltern of about 18, of a delicate and somewhat injured constitution. He was born in India, both his parents were Europeans, and he had never been in Europe. Between eight and nine o'clock, we were alarmed by a notice that one of the furious storms, I have above described, was fast approaching. Immediately all the party broke up, and the young man among the rest ran home. It was impossible for a room with several guests, and servants and lights, to be cool in the previous part of such an evening, and he probably had increased the heat produced in consequence, by the haste he made home. Scarcely was he there when the hurricane came on, accompanied with a very profuse fall of hail-stones. Ice being always a rarity to the natives of India, hail is looked on with a kind of mysterious wonder, and many medical virtues are in consequence attributed to it: on this account, when it falls, the natives make a practice of swallowing as many of the stones as they can. This young man, being

necessarily much familiarized to native manners, was imprudent enough to swallow a great many. When the first violence of the storm was over, a strong wind continued blowing through the night. Tempted by the coolness after so much heat, he opened his principal door to the wind, drew his cot close across it, and there slept for the night, fully exposed to the blast. On awaking he found himself totally unable to rise. By care and management however, he in some degree recovered from the first shock, but never regained his original strength, and died, after about six weeks of increasing debility and hectic.

The cantonments of Mullye are situated immediately on the east banks of a lake, of the kind I have above described, as formed in the deserted bed of a river, the Bhugmutty, and which is at all times in the highest degree loaded with aquatic plants and animals. The prevailing east wind generally blows away its exhalations to the other side, and during the cold weather, the quantity of water is too inconsiderable to have much effect. But in the rains, when there is no wind, and much more when the wind happens to be westerly, the whole cantonments are infected by a very sensible smell from its surface, resembling strongly that of smoke from green wood, and the odor is exceedingly disagreeable. In the dry weather fogs are not very common, but in the rains and cold weather, however clear the day may have been, at night a very heavy dew begins to fall,

and by morning the whole atmosphere is loaded with a fog, so intensely thick, that a building at the distance of 150 yards is hardly visible, and the quantity of moisture on the ground is as great as would be produced by a heavy fall of rain. When the rising sun begins to have a little power, the whole mass of vapour is seen rolling off the surface like an enormous coverlet rolled up from a bed; and apparently so thick, that it seems almost possible to follow and push it on. It rolls on to the horizon, and settles for the rest of the day in a thick battlement on the summits of the hills, presenting the appearance, no doubt, alluded to by the inspired prophet, when he compares a numerous army to the "morning (that is, the morning mist) spread upon the mountains." *Joel* ii. 2. At these times I have observed, what has not occurred to me as noticed by others, that living vegetables seem to have the power of actually attracting moisture from the air. I invariably found a much larger quantity of dew spread on the grass than on dry places. A foot path, for example, would appear quite dry, and in some degree dusty, while the grass on both sides was covered with moisture sufficient, had it been spread in equal proportion over the path, to have converted it into a muddy puddle.

As a further illustration of the nature of the atmosphere and climate in general, I shall add the following observations, which may be of some use in a medical point of view. During the rains

the immense abundance of cold blooded animals is really astonishing. Of these, frogs are the most numerous. No place is free from this plague; every hole and every corner, both of the most retired and most public rooms, are equally infested. If a table, a chest of drawers, or a box be moved, or a carpet be lifted, they are found nestled underneath by 15 or 20 in each corner; and thus through our halls, our bed rooms, and our sitting rooms. There they remain during the day; and towards sunset, they begin to issue from their ambuscades, and traverse the whole house in quest of prey. The following anecdotes may give some idea of the number of insects. One morning at sunrise, I was awakened by a loud humming in my bed-room, resembling that of a market or fair held at a distance. On examination, my window was darkened and my bed covered with an Egyptian swarm of gigantic winged ants, about $1\frac{1}{4}$ inches long, and of a dark red colour, and the thickness of a crow quill, issuing in an uninterrupted stream, from a hole between the square tiles of the floor. Such swarms are very common, and the air is then crowded with crows and hawks that come to devour. One evening, about an hour after sun-set, we were alarmed from without, by what seemed an excessively heavy fall of rain, pouring in torrents. On enquiry the night was perfectly clear. Curiosity led me to go out with a light to examine the cause. I found it proceeded from an almost inconceivable number of black beetles issuing from the ground: they were somewhat larger than the first

phalanx of the thumb, and their aggregated hum was the sound we had heard. To say they were coming from the earth in thousands, or tens of thousands, scarcely gives an adequate idea of their production. They must be conceived as issuing in a continued torrent from every inch over the whole ground, and filling the atmosphere with their flight. I shall give one other instance, which to me was peculiarly interesting, and on that account, perhaps, more observed by myself than by others. Mullye produces, above all other places, those insects which are destructive to books and papers. Notwithstanding the utmost care, exposure, and cleanliness, the outside of books appears perforated with small holes, as if by a pin, and apparently made for the entrance of a small species of white worms, about a quarter of an inch long, —colonies of which, having thus got entrance among the leaves, there revel in immense destruction. They eat in serpentine labyrinths, till the whole book is traversed through and through, and destroyed. Happily they seem to have a dislike to ink, and seldom attack the printed part of the leaves till they have previously feasted on the margin. At other stations, occasional examination of the shelves and opening the volumes was sufficient to stop the invaders; but at Mullye, no precautions whatever had any influence in restraining their ravages. I may also add, that it was invariably necessary to alter the disposition of my library in the dry and rainy weather. It is no exaggeration to say, books of all kinds become in the latter season so swelled with mois-

ture, that a shelf cannot then hold more than three volumes out of the four, that it easily contains in the dry part of the year. Books bound with ill seasoned, particularly with Hindoostanee leather, and still more especially if left to lie neglected on a table for a day or two, became covered with a stratum of white mould, at least an eighth of an inch thick; and an approach to this takes place even in the best Europe leather. The boards are then soaked through with moisture, whilst in the hot winds they are parched and rolled up as if held before a fire. Of course all this renders their preservation extremely difficult. After this, I leave it to be imagined that the moths among clothes, and the omnivorous white ants among almost every thing, but particularly the timber of buildings, are fully proportioned in numbers to their kindred plagues. The last thing I have to mention, though it may appear in some degree ridiculous, may yet serve to illustrate the nature of the climate. Small mushrooms grow in every corner that is the least neglected, even in the most frequented rooms: left to themselves, they would attain the height of about two inches, with a top rather larger than a shilling; but they are generally discovered and brushed away before they reach maturity.

Water is universally got by sinking wells, which seldom require more than a depth of eight or ten feet. Many of these are strongly impregnated with saltpetre, and it is a fortunate circumstance to discover one free from this contamination. The water

when taken from the well is put into large earthen jars, and cleaned by boiling and putting into it a small quantity of alum.

The seasons are divided into hot and cold, and the former may be again subdivided into the dry and rainy; the dry begins about the middle of March, and continues to the middle of June. This is the time of west hot winds in other parts of India; but at Mullye they are very insignificant, the prevailing wind at all times being east. This also is the season for violent storms. The rainy season begins about the middle of June, and continues till the end of September; after which, the cold weather approaches. Perhaps the following observation may not be out of place here. The nearest mountains, as I have stated before, are about the distance of 25 miles to the north. During the cold and dry hot weather they are never to be seen, being constantly screened behind a mass of dense dust-colored vapor; but so soon as a shower of rain falls, and much more when the full rains set in, the veil is removed, and Mullye then enjoys a prospect of prodigious extent, comprehending not only the comparatively low ranges of Nepaul, but high and far beyond them the inaccessible mountains of Thibet perpetually covered with snow. These last are said, (but I dare not confirm the statement,) to be at the distance of 200 miles. This seems conformable to an observation of Dr. Darwin in his Zoonomia, in his classification of diseases of irritation, I. 1, 4, 1. "The increase of trans-

parency, by filling the pores with fluid, is seen by soaking white paper in oil; which from an opake body becomes very transparent, and accounts for a curious atmospheric phenomenon; when there exists a dry mist in a morning, so as to render distant objects less distinct, it is a sign of a dry day; when distant objects are seen very distinct, it is a sign of rain." I need not transcribe more from a book in every one's hand. What he says is farther strengthened by an additional circumstance, that the prospect is by much the brightest in the damp mornings and evenings, and is at such times exceedingly grand. In the heated middle of the day, it becomes greatly more faint and dim.

The healthy season is the whole of the cold weather, and beginning of the hot winds, till about the first days of June. The dry hot weather is generally found, I believe, all over India, to agree extremely well with every class of persons, except those who from their occupation are compelled to be much exposed to the direct power of the sun. But in June, the heat is so excessive, and the days so long, that the utmost caution is insufficient to avoid this; and in consequence feverish diseases more or less prevail. The truly sickly season, however, is the rains; not indeed immediately at their first setting in. For some time they afford an agreeable alleviation of the former intolerable heat, and the water vanishes in the scorched ground as fast as it is poured down from the clouds. But after they have prevailed for about a month, and

the rivers are swoln by the melting of the mountain snows, then simultaneous to the enormous increase of vegetation above described, the reign of jungle fever begins, and continues to the end of November.

During the rains, the rivers are extremely rapid, and have abundance of vegetable matter on their banks; but during the hot weather most of them are comparatively small brooks, with a very broad margin of sand on each side. The sand constitutes the bed of the river when full.

The prevailing diseases are tedious rheumatism from exposure to the wind, fevers of an ardent type from exposure to the sun, and jungle fevers, of a low and more malignant kind during the rains. These seem to attack all classes, pretty indiscriminately, whether Europeans, natives, or the class which it now seems agreed to call Indo-Britons or Eurasians. It must be observed, however, that all the Europeans within my observation in Tirhoot, have been those for some time resident in India. Besides these diseases, two others are very prevalent among the natives. One is a tedious and incurable diarrhœa, which destroys the patient after wasting him miserably for six and eight weeks. The other is the famous swelling in the throat, the Goitre or bronchocele of the Alps. The Hindostanee name is *Ghega*, and probably as many as one out of ten individuals in the neighbourhood of Mullye are affected by it,

often to an enormous size. It is said, that it also attacks Europeans in Tirhoot. There seems no cure to be depended upon.

I shall conclude, by reminding my readers, that the above observations, as far as regards the unhealthiness of the climate, are to be considered as almost exclusively applicable to Mullye, and its immediate vicinity. The southern parts of Tirhoot, from the town of Mozafferpore to the Ganges, are generally considered extremely salubrious.

ON

# THE CLIMATE, &c. OF POOREE.

By Dr. BRANDER,

*Presented September* 6, 1828.

I AM favored with your letter* of the 29th ultimo, and seize the earliest opportunity afforded me during the busy season of the Ruth Jhattra, to furnish you (to the best of my ability,) with the information you require, relative to the salubrious station of Pooree. It has been long since my wish to have such an opportunity, as the present, of describing a spot so apparently neglected, and yet so admirably suited by climate and position to afford a most desirable retreat to the convalescent and enfeebled invalid. The pure and invigorating air of this marine station, together with its equable climate, truly entitle it to the appellation of the Montpelier of the East, and ample reason I have to esteem my being stationed at such a spot one of the most fortunate incidents in my Indian career, notwithstanding the observations which its salubrity has attached to it, of its being alone inimical to the interests and thriving condition of medical men.

Without further digression, I proceed to transcribe your queries and reply to each *seriatim*.

These remarks, concerning Pooree, are in reply to a letter from Mr. Twining.

1. *What are the best months for convalescents to go to Pooree ?*

Placing this question in two points of view, I would say as regards the passage down by sea, and the facility of landing, that the two-thirds of the year comprised between October and May, constitutes the most favorable season ; but as regards the actual residence at Pooree, the preference should be given to February, March, April, May, and the early part of June, which as they are found to be the months apparently the most trying to the European constitution in other parts of India, become, in a ratio, corresponding with the difference of temperature and other local advantages, relatively the most healthy and best suited to a sojourn on the coast. At that period the S. W. Monsoon prevails, and seems to exert with greatest effect its prophylactic influence over the convalescent visitor; who is not a little gratified to find as a substitute for the tatties and artificial refrigeration, necessarily employed at inland stations, a never-failing source of cool air in the renovating sea breezes. Although a preference has been assigned to the above months, it is not easy in a climate, on the whole so uniform as this, to point out with precision the period of the year that may be deservedly designated the healthiest: the most agreeable, and probably the most congenial to the feelings, are the months comprised between October and February inclusive, when the mercury ranges between 64 and 76′.

The extremes of temperature during the twelve months, as indicated by Fahrenheit's thermometer, are 64 and 89′, subject to very little sensible variation during the 24 hours. I regret not having had the means of taking the barometrical changes with accuracy, it may however be inferred, that the state of the atmosphere differs little from that of other maritime situations, within corresponding geopraphical limits.

2. *What are the unfavorable months and why unfavorable?*

June, July, August and September, may be accounted the unfavorable months, for the following reasons. Pooree at that season is less accessible to vessels, communication with the shore being rendered very uncertain by the prevailing strong S. West winds and heavy surf; forming at times an insurmountable barrier to any other mode of intercourse than that of telegraph. The rains, which are moderate in quantity, compared with inland situations, prevail during the above months, and although, not constituting the most desirable season, are far from creating a disagreeable change, seeming, during their continuance, to promote the growth of the scanty supply of verdure on the extensive and partially covered sandy plain, and thus, aided by the cloudy state of the atmosphere, tending indirectly to diminish the reflected heat and vivid glare of light.

3. *What is the best mode of going from Calcutta to Pooree?*

Assuredly by sea,—the land journey being fatiguing, and river navigation available only for a few months in the year, and that under rather unfavorable circumstances. The voyage by sea is performed by the Pilot Schooners in two days; requiring, probably, under adverse winds, as many weeks for its accomplishment. With the aid of steam navigation, of course, the trip may be made with greater certainty and expedition. To facilitate the communication with vessels, there are suitable well manned boats always in readiness on the Coast, under the immediate superintendance of a Master Attendant.

4. *Can houses be got at Pooree, and for what number of families and persons?*

At present there are few houses at the station unoccupied, those that are so, being with few exceptions, the property of the residents at Cuttack, who avail themselves of them during "the hot months," and occasionally at intermediate periods of the year. There is however, every facility of adding at a cheap rate to the number of bungalows, which may be extended in both directions to an indefinite length, in a line corresponding with the present buildings, situate about two hundred yards from the beach.

5. *Is it possible to go from Calcutta to Pooree at all seasons of the year?*

At all seasons, with the chance, however, (when performing the passage by sea,) of encountering obstacles to an immediate landing during the prevalence of the S. West gales, at which period, as stated in reply No. 2, the high winds and heavy surf render communication with the shore uncertain.

6. *What are your prevailing fevers, and what are the visceral affections which usually follow?*

So exempt has Pooree been from sickness since my residence on its shores, that I cannot possibly assign to it the prevalence of any particular type of fever; neither do I learn from those who have been long resident at the station, that any disease of an endemial or epidemic character ever made its appearance. The cases that have hitherto come under my notice (among Europeans), have been of the intermittent and remittent form of fever, occurring in persons who have contracted illness at Cuttack, or at more distant stations; and have visited the Coast for the benefit of sea air, (which we must allow is next in value to a sea voyage). The Pilgrim Hospital under my charge, being occupied chiefly by the description of Invalids for whose relief it is intended, affords me a very limited opportunity of investigating and treating the diseases incidental to

the indigenous population of the town of Juggernauth, situate at the distance of half a mile from the sea, and inhabited by a numerous class of religious devotees, whose ultra superstitious notions seem to inspire them with more than an ordinary contempt of European medical advice. As far however, as my intercourse with them has afforded me opportunities of observation, I account the most prevailing diseases to be Chronic Dysentery, Leprosy in its worst and most disgusting form; Nyctalopia and Elephantiasis. The latter of these seems to be in a manner peculiar to the town of Juggernauth, attacking individuals of both sexes at a very early age, to a frightful and irremediable extent. The circumstance of the left lower extremity being found much oftener the seat of disease than the right, has often struck me as a very remarkable and no less unaccountable fact.

Without considering myself guilty of any very great digression, I venture to trespass further on your patience, by adding a few remarks as an appendix to the above imperfect reply to your queries. Although situated so immediately on the coast, Pooree is abundantly supplied with a very pure description of soft well water, procurable in any part of the sands at the depth of from ten to thirty feet.

In the neighbourhood of Uteer, a village about thirty miles distant, there is a hot mineral spring, the temperature and properties of which, I have not

yet had an opportunity of investigating. The facility, (and much less the utility) of employing the hot and cold sea water bath, I need scarcely point out after the above description of the proximity of the dwellings to the beach. At present there are no bathing machines, but there exists no impediment to their introduction when required. Among other localities it may not be amiss to mention that there are Military lines at the station, calculated for half a battalion, and which, although unoccupied for the last three years, are maintained in perfect repair, and calculated at the shortest notice to afford comfortable quarters to invalid troops.

All description of vegetables and the usual variety of fruits, including grapes, strawberries, &c. may be procured in abundance and perfection, by care and cultivation; the garden ground in the neighbourhood of the town of Juggernauth, being esteemed highly productive.

Poultry and meat are cheap, and obtainable in the same manner as at other remote stations; with the exception of beef, which being considered forbidden food within fifteen coss of this sacred spot, is procurable only beyond such limits, when appetite invites to the indulgence. Fish is to be had at all times and in great variety and abundance during the colder months. The Chilka Lake, about fifteen miles distant, furnishes all the year round an infinite

supply of the most delicate kinds of fish, including in the proper season, oysters, crabs, prawns, &c. The lake also abounds with every description of wild fowl.

The means of taking exercise are perhaps more circumscribed than at inland stations, in consequence of the beach not always admitting of the use of wheel carriages; and the sands being generally of too yielding a nature to favor the usual expedition of such conveyances. All other modes of exercise are as practicable as elsewhere; that of the elephant being the most employed. Seeing how entirely remote Pooree is from the sources of disease peculiar to inland stations, the salubrity and uniformity of its climate, its ready access at all periods of the year, and further, the benefits the voyage holds out to the invalid, and those sinking under tropical disease, it is probably difficult, with such available advantages, to fix upon any spot better suited for a Sanatarium or convalescent retreat, than the one under consideration: a visit to which, might I think, in many instances preclude the necessity of undertaking voyages to Europe or the Cape; performed frequently with considerable sacrifice and inconvenience.

In conclusion, as these remarks have been hastily drawn up, I must beg you to pardon all errors of omission, and commission which I may have been guilty of, and I shall at any future time be happy to furnish any additional information on this subject.

# REMARKS

ON

# THE ADVANTAGES TO BE DERIVED

FROM

# DILATING THE PUPIL

FOR THE OPERATION OF

# EXTRACTION OF THE LENS.

By G. W. W. RALEIGH, Esq.

*Presented November* 1, 1828.

IT is not necessary for my present purpose, that I should enter into a description of the several points to be attended to in the performance of the operation for extraction of the opaque lens; it is sufficient to state, that I am not in possession of any authority for dilating the pupil as a preparatory step to the operation of simple extraction; on the contrary, our modern writers and lecturers reprobate the practice, or I should rather say, give us to understand, that belladonna is to be applied only for the purpose of examination, and that the operation is not to be undertaken until the motions of the iris have become perfectly free. With due respect for the high authorities which may be advanced in support of such opinion, I am inclined to believe, it is not founded on observation of fact, but is merely a general rule, for which apparently there is some founda-

tion, but which seems to me to be the result of considering the eye in too mechanical a light, and theorising on the probable effects of disarranging any of its component parts, together with that horror of spasm which is entertained as an attendant on this operation, but which, as far as I have had an opportunity of observing, is of very rare occurrence: where the cataract is not the result of recent violence or inflammation, escape of the vitreous humor being much more frequently the effect of pressure, made to overcome the resistance offered by a contracted iris; which pressure is sometimes, with considerable difficulty, regulated with the required nicety, to the greater or less deterioration of the organ.

The principal objections urged against dilating the pupil for this operation, appear to me to be two;

1st. That a contracted state of the pupil is requisite for the support of the lens, as a preventative to its sudden expulsion on the division of the cornea.

2dly. That a necessity exists for the iris possessing vigorous muscular power, in order that it may, on the escape of the lens, regain its natural position. Granting these circumstances to be necessary to the success of the operation, I am prepared to advance, that a judicious dilatation of the pupil with belladonna or hyosciamus, does not so far interfere with these performances of the iris as to prevent both objects being effected to the extent required, whilst advantages are gained in the several steps of the

operation, which can alone be duly appreciated by such as have experienced the perplexity occasioned by an obstinately contracted pupil, an occurrence by all acknowledged frequently to take place, even where the section of the cornea has been perfectly made, and other circumstances have been favorable. To overcome this inconvenience it has been proposed to interpose a curtain between the eye and the light, to delay the prosecution of the operation, and where the contraction cannot without violence be overcome, to defer it until a more favorable opportunity; a circumstance disappointing to the surgeon, and in all probability more seriously injurious to the patient.

Sufficient reason then evidently exists, to authorize an endeavor to ameliorate such an evil; and I am induced to think, from accurate observation, and a fair and extensive trial, that the use of belladonna in the way I am about to mention, does so in a very material degree. I have stated my disbelief of spasm of the muscles of the globe being so frequent an occurrence as authors lead us to understand. It is therefore necessary I should state, that my opportunity of performing this operation has been confined to natives of India, a race essentially differing in constitution from Europeans. From what I have observed to take place in the practice of English and French surgeons, I am, however, disposed to maintain such an idea: that it does occasionally occur, is certain, and where we have reason to anticipate its intrusion, perhaps it

would be unadvisable to diminish the powers of the iris in any degree.

The propriety, previous to pursuing any steps for the removal of cataract, of examining its nature, and adopting a suitable method of operating, will not be argued. The necessity of speedily performing the operation after such examination, in several instances, led me to a practice which subsequent comparative trials, in my prejudiced opinion, warrant.

I shall now proceed as briefly as possible to state what I conceive to be the advantages derivable from dilating the pupil, and I cannot do so better, than by going through the method I generally observe. Belladonna being applied over the brows, and a weak solution dropped beneath the palpebræ, in from half to three quarters of an hour, the iris will be found to form a mere ring, advancing about a line anterior to, or nearer the centre of the lens, than the margin of the cornea, excepting at the upper and inner, where it is more narrow than at any other part of its circumference. This retraction of the iris on itself does not, as may be supposed, occasion any encroachment on the anterior chamber; the communication between the anterior and posterior chamber is rendered capacious, and the greater part of the body of the lens exposed. The point of the knife entered at about half a line anterior to the margin of the cornea may be directed with a slight obliquity backwards towards the centre or opposite edge of the lens, by which wound-

ing the iris at this juncture is scarcely possible. The handle of the knife being now carried back*, and its point directed towards that part of the cornea, at which it is intended to be brought out, the section of that membrane is to be made, the upper lid being allowed to fall at the same instant: on raising the lid, it will be found that the iris had contracted during the time the section of the cornea was completing, to an extent sufficient to render the lens all necessary support, which state of contraction it occasionally retains for a short time; but more generally at this period it will be observed to have again relaxed, and presents a pupil about one-third dilated, frequently irregular, and appearing as if it had exhausted itself in its last effort. The capsule is now sufficiently exposed to allow of being freely lacerated, and the upper lid being gently raised by means of the curette laid across it, will occasion the lens to glide out without the loss of a particle of vitreous humour. Lightly rubbing the globe through the palpebræ with the top of the finger, is in general sufficient to restore a circular, though partially dilated pupil. Thus, every salutary object is acquired, whilst some of the greatest impediments which could present themselves during so delicate an operation, together with their serious and frequently fatal results, are evaded. The application of belladonna several hours previous to the operation does not render the powers of the iris

* It is scarcely necessary to observe, that no such change in the direction of the knife is to be made, as would allow of the escape of aqueous humor.

W. R.

so dormant, but that it is perfectly susceptible of being stimulated to action by the introduction of a foreign body into the organ: it is more advisable, however, to operate as soon after the pupil has become fully dilated as possible, as the long continued effect of belladonna, even when applied in the form of very weak solution, renders the iris incapable of contraction, which want of power is in proportion to the period of the use of that drug.

The advantages obtained then by dilating the pupil with belladonna previous to undertaking this operation are;

The retracted state of the iris, allowing a safe entrance of the point of the knife into the anterior chamber, and preventing its falling under the edge of the knife in forming the section of the cornea.

The facility afforded in the execution of the latter steps of the operation, the easy extraction of the lens, rare escape of vitreous humour, (an occurrence which, although unattended, if the quantity be small, by serious consequences, is never a welcome one,) and the avoidance of the destructive inflammation which frequently follows violence committed on the iris. Prolapse of the iris does sometimes occur at the period of operation, but more generally subsequent to it; perhaps, however, not more frequently than where the pupil has been allowed to enjoy its unrestrained powers. I have never seen an iris so paralysed by

the use of belladonna for a few hours, as not to be capable of resuming its original situation.

The object in this practice being (at the period of operation) merely to diminish without destroying the action of the iris, the operation should be performed as soon after the pupil has become dilated as practicable.

CASE

# OF POPLITEAL ANEURISM

IN A NATIVE.

By J. LAWRANCE, Esq.

*Presented January 3, 1829.*

CHINNIAH, a stout robust Sepoy, was admitted into the Hospital of the 41st Regiment, Madras Native Infantry, September 12th, 1828, with a strongly pulsating tumor in the left ham. The swelling is about the size of a large orange, and extends upwards in the popliteal space. Pressure on the femoral artery, as it passes over the os pubis, completely stops the pulsation in the swelling, and diminishes it to one-third of its former size. The heat of the part is much increased. The veins of the leg are much distended, and the foot a little œdematous. The integuments covering the ham are in their natural state, and free from any discoloration. The whole arterial system is in a high state of excitement. The pulse at the wrist 86, and remarkably full and strong. The aorta and carotids are pulsating with such force, that they appear distended to three times their natural size. He gives the following statement of its origin. Three marches on the other side of Chandah, he put his foot into a hole, and in recovering himself, strained this leg severely. On examining it immediately after, he discovered a tumor in the ham about the size of a walnut. The limb became

painful and swollen; after the accident, he marched 14 days, and the swelling gradually increased to the size it presented on admission. He was bled, and fainted when sixteen ounces had been taken away, and the tumor was reduced to the same size as when the femoral artery had been pressed on. He was ordered to take some opening medicine, and the following draught every four hours, or as frequently as was necessary, to keep up nausea, and diminish the action of the heart and arteries.

*R.* Tinct. Digitalis *M.* xxx.
Antim. Tart. grs. $\frac{1}{4}$.
Aqua oz. iss. *M.* ft. h.
A cold Lotion to the Tumor.

13th.—His bowels have been freely opened, and nausea has been constantly kept up. It has not had the slightest effect on his pulse. The Aorta and the femoral arteries give a remarkably vibrating and hard sensation. He was again ordered to be bled, but obstinately refused.

Contr. Remedia.

It is useless to give a daily detail of the case, since it continued without any variation till the 19th. In this interval, though constantly urged to allow bleeding to be employed, he continually refused, although he had no objection to the performance of an operation. The nauseating plan was pursued, and he was frequently purged. The quantity of his food, which was of the least irritating kind, was

greatly diminished, and though he became much reduced, yet the circulation remained unabated.

19*th*.—The aneurismal sac during the night has given way, and a considerable portion of blood is effused into the cellular substance in the inner side of the ham, increasing the tumor to double its former size. The pulsation is become very indistinct. The heat of the part remains much the same, but the foot and ancle are rather more œdematous. The pulse is now 76, and much reduced in force, though still very hard. As from the decreased force in the circulation, this was apparently a favorable opportunity, and the progress of the case demanding it, I resolved on securing the artery on the following day.

20*th*.—The tumor remains in the same state, and he has taken frequent doses of digitalis, which has had the effect of diminishing the pulse till within a few minutes of the operation, when it rose to its original force and frequency. With the assistance of Dr. Davis, the Superintending Surgeon, Surgeon Cruickshank, and Assistant Surgeon Adam, I cut down to the artery, and passed a ligature round it, about two inches from the point where the Profunda is given off. No difficulty occurred in the operation, but on laying bare the Fascia Lata, I imagined the vessel was placed more superficially than usual, and close to the outer margin of the Sartorius. On turning the edge of that muscle on one side, the artery was found deeply situated, and close to its outer side. The impression arose from the powerful action of

the vessel, which notwithstanding its depth, appeared to all present immediately under the finger. All pulsation of course ceased in the tumor, which became also a little diminished in size. The limb was wrapped in flannel, and moderate pressure applied by a tourniquet, to diminish the impetus of blood into the part of the vessel above the ligature. The nauseating medicine with digitalis was also continued.

*Vespere.*—The temperature of the limb, which had been considerably reduced after the operation, rose shortly to the natural standard. He appears in a state of great alarm, and is suffering considerably from nausea. His circulation continues much in the same state.

21*st.*—Pulse 76, and a little softer than yesterday. A clot has apparently formed above the ligature, as in that spot the artery communicates only a vibrating sensation, produced probably by the powerful impetus of the blood, as it passes into the profunda. His bowels are freely open, and he has considerable nausea: he is still labouring under great apprehension.

*R.* Tinct. Opii. drss.
Mist. Camph. oz iss. *M.* ft. haust H. S. S.

22*d.*—The opiate has tranquillized him very much. The tumor is diminished one-fourth. Pulse much reduced in force.

Pergat.

24*th*.—Pulse 78, and much softer. On taking off the dressings, the wound was found united, except just around the ligature, from whence about half a tea spoonful of matter flowed. A further detail of the case is unnecessary, and it is sufficient to state, that the ligature came away on the 11th of October, twenty-two days after the operation, and the wound had perfectly healed on the 28th of the same month, when he was allowed to remain in his quarters. The immediate effect of the operation, was to diminish the arterial action; but its abatement was so gradual, and its force for many days, after the operation, so great, as to keep me in constant apprehension of secondary hemorrhage. The excessive arterial action in this instance, I can only attribute to the excitement produced by marching fourteen days with such a disease ; for I have seen numerous cases of aneurism, but I never witnessed such a permanently excited action. I endeavoured to ascertain in what state the man had been before the occurrence of the accident, and whether there was any thing peculiar in the action of his heart and arteries ; but from his answers, I should imagine him to have been in perfect health. At the time of writing this, his circulation is perfectly natural, and the tumor is reduced to one-third of its original size. His strength and former appearance have also returned, and although he cannot perfectly straighten the limb, and in walking limps very much, yet it is daily acquiring more power and motion.

# APPENDIX.

## No. 1.

### *Map of the Neelgherries.*

[See preceding paper on Topography of the Neelgherries, p. 40.]

## No. 2.

### *Note, pour etre jointe aux Echantillons des Plantes des Montagnes de Neligaret.*

La colléction des plantes que mon ami Mr.Sullivan et moi avons recueillies sur les montagnes de Neligaret renferme plus de 200 éspeces, parmi lesquelles un grand nombre de nouvelles, nous avons pensé que la Sociéte Litteraire de Madras recevroit, avec interet, quelques échantillons de ces plantes. Le tems, que j'ai été obligé de donner a leur recolte et a leur preparation, ne m'a permis que de les examiner rapidement ; je marquois des livres et des moyens de comparaison, necessaires pour fixer definitivement leur place, aussi je me suis contenté le plus souvent, de reconnoitre le genre. J'ai donne, avec reserve, quelques noms specifiques aux éspeces les plus remarquables : ces noms ne peuvent etre que provisoirés, car j'ignore si les plantes, auxquelles je les ai donnes, n'ont pas eté nommées par M. M. *Roxburg, Rotteler, Buchanan, Klein* et *Heyne,* dont les recherches sur d'autres montagnes de la peninsule sont anterieures aux miennes, mais dont je ne connois point les herbiers.

Le regne végetal sur les montagnes de *Neligaret* offre le plus grand interet, tout par le nombre des objets nouveaux, que par la difference qui existe entre les plantes de cette contrée, et celles de la plaine, on y trouve

un grand nombre de genres analogues avec ceux d'Europe ; tels sont, les *vaccinum, rhododendrum, fragaria, (strawberry,) rubus, (rasberry,) anemone, balsamina, geranium, plantago,* &c. &c. ce rapport indique que les plantes utiles d'Europe s'acclimateroient parfaitement bien, et la vigoureuse végétation, que l'on remarque partout, assure d'abondantes récoltes.

Parmi les plantes les plus remarquables que nous avons recueillies je citerai le BERBERIS TINCTORIA, éspece nouvelle dont le bois et l'ecorse fournissent une belle couleur jaune qui peut devenir importante pour les teintures, si l'on parvient a lui donner de la fixités ; elle n'est point employée par les indigenes.

Le *Leptospermum scoparium* arbuste qui produit un fruit éxcéllent que le culture rendroit encore meilleur, il seroit possible d'acclimater ce charmont arbuste dans plusieurs contrées d'Europe.

Mr. Whish, junior, m'a adréssé une éxcéllente déscription d'une belle plante qui croit au sommêt des plus hautes montagnes ; elle appartient a un genre nouveau je ne l'ai trouveé ni en fleurs ni en fruits.

Les bois offrent souvent des arbres d'une grandeur et d'une grosseur remarquables, bons pour le charpente et le mamusirie les bords des ruissaux et des torrents sout parés de jolies plantes et d'arbustes élégants qui peuvent embellir nos jardîns.

Parmi les plantes céreales le bled et l'orge dont je n'ai vu que les grains, m'ont parmi d'une qualité inferieure, et je crois nécéssaire de renouveller les semmes.

LESCHENAULT DELATOUR,
Membre honoraire de le
Societe Litteraire de Madras.

Coimbetore,
1st Juin, 1819.

N

*A Table exhibiting the Monthly and Yearly Mean Temperature of the*
*Neelgerries; at the Cape of Good Hope, New South Wales, and the Cit*

| | CALCUTTA. | | | BOMBAY. | | | MADRAS. | | | THE NEEL | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | At the Observatory. | | | Seerloo, 3500 feet above the level of the Sea. | | | | | | Jackanary above the lev | | |
| | | | | | | | | | | Mtly. Means. | | | | Range. | | Mtly. Mean | | |
| | Mean Maximum. 3 P. M. | Mean Minimum. 6 A. M. | Mean Temperature. | Mean Maximum. 4 P. M. | Mean Minimum. 11 A. M. | Mean Temperature. | Mean Maximum. | Mean Minimum. | Mean Temperature. | 6 A. M. | 3 P. M. | 9 P. M. | Mean. | From | To | 6 A. M. | 3 P. M. | 9 P. M. |
| January, .... | 75,1 | 63 | 69,1 | 78 | 76 | 77 | 82,2 | 74,1 | 78,5 | $60\frac{1}{2}$ | $77\frac{1}{2}$ | $62\frac{1}{2}$ | $66\frac{3}{4}$ | 83 | 54 | $51\frac{3}{4}$ | $63\frac{1}{2}$ | $53\frac{2}{3}$ |
| February, .... | 80 | 67 | 73 | 78 | 76 | 77 | 84,5 | 73,8 | 80,7 | $62\frac{1}{2}$ | $77\frac{1}{2}$ | $62\frac{1}{2}$ | $67\frac{1}{2}$ | 94 | 58 | 48 | $63\frac{1}{2}$ | $54\frac{3}{4}$ |
| March, ..... | 88,1 | 78 | 77,1 | 81 | 80 | 80 | 87,6 | 78,7 | 84,9 | $65\frac{1}{4}$ | 83 | 68 | 72 | 99 | 64 | $56\frac{3}{4}$ | 66 | 60 |
| April, ..... | 95,1 | 79,1 | 87,1 | 84 | 83 | 83 | 92,0 | 84,1 | 89,4 | 0 | 0 | 0 | 0 | 0 | 0 | $59\frac{1}{4}$ | $67\frac{3}{4}$ | $62\frac{1}{4}$ |
| May, ..... | 97,1 | 80,1 | 88,7 | 85 | 85 | 85 | 94,3 | 85,1 | 90,6 | 66 | $87\frac{1}{4}$ | 69 | 74 | $89\frac{1}{2}$ | $65\frac{3}{4}$ | 60 | 68 | $61\frac{3}{4}$ |
| June, ..... | 88 | 78 | 83 | 86 | 85 | 85,1 | 90,5 | 84,2 | 87,9 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 65 | 62 |
| July, ..... | 86,1 | 78,1 | 82,1 | 81 | 81 | 81 | 92,6 | 85,3 | 89,0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | $69\frac{3}{4}$ | $60\frac{1}{4}$ |
| August, ..... | 86,2 | 79,3 | 82,2 | 84 | 84 | 84 | 89,9 | 83,1 | 86,6 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 70 | 60 |
| September, .. | 86 | 78 | 82 | 80 | 79 | 79 | 89,7 | 83,3 | 87,0 | 0 | 0 | 0 | 0 | 0 | 0 | $53\frac{1}{2}$ | $64\frac{1}{4}$ | $55\frac{1}{4}$ |
| October, .... | 89,2 | 76,1 | 82,3 | 85 | 84 | 84,1 | 87,8 | 82,4 | 85,7 | 0 | 0 | 0 | 6 | 0 | 0 | 60 | $64\frac{3}{4}$ | 60 |
| November, .. | 78 | 65,2 | 71,4 | 85 | 84 | 84,1 | 84,3 | 80,1 | 82,7 | 0 | 0 | 0 | 0 | 0 | 0 | $52\frac{3}{4}$ | $62\frac{1}{2}$ | $54\frac{3}{4}$ |
| December,.... | 75 | 59 | 67 | 81 | 80 | 80,1 | 80,2 | 76,0 | 78,0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | $64\frac{1}{2}$ | $55\frac{1}{2}$ |
| Annual means, | 85,3 | 73,4 | 78,3 | 82,4 | 81,5 | 81,4 | 87,9 | 80,8 | 85,1 | $63\frac{1}{2}$ | $81\frac{1}{2}$ | $65\frac{1}{2}$ | 70 | 91 | $60\frac{1}{4}$ | $56\frac{1}{2}$ | $65\frac{3}{4}$ | $58\frac{1}{4}$ |

RECAP

Mean Temperature of the Air in London,.....
Do. Do. Do. on the Neelgerries,.....
Do. Do. Do. New South Wales,.....

3.

*t Calcutta, Bombay, and Madras; at three several Elevations on the London: with average Falls of Rain in England and the Neelgerries.*

| s. | | | | | | | | AFRICA. | AUSTRALASIA | | | ENGLAND. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| feet e sea | Ootacamund, 8500 feet above the level of the Sea. | | | | | | | Cape of G. Hope. | Sidney, New S. Wales. | | | London for 1819-20 and 21, from Daniel's Meteorological Essays. | | | | | |
| | Mtly. Means. | | | | Range. | | Average fall of Rain for 2 years. | | | | | | | | Range. | | Average fall of Rain for 2 years. |
| To | 6 A. M. | 3 P. M. | 9 P. M. | Mean. | From | To | Incs. | Mean Temperature | Range. | Maximum. | Minimum. | Mean Temperature. | Mean Maximum. | Mean Minimum. | Mean Temperature. | From | To | Incs. |
| 49 | 45¾ | 57¼ | 47.7 | 50¼ | 59. | 31. | 1.17 | 76. | | 102° | 47. | 74 | 39.6 | 32.6 | 36.1 | 52 | 11 | 1.483 |
| 43 | 45¾ | 59½ | 49¾ | 51¾ | 63 | 39 | 0 | 79. | | 106° | 52. | 73 | 42.4 | 33.7 | 38. | 53 | 21 | .746 |
| 44 | 58 | 63 | 62 | 61 | 65 | 55 | 2.47 | 75. | | 97. | 49.5 | 68.5 | 50.1 | 37.7 | 43.9 | 66 | 24 | 1.440 |
| 54 | 58 | 63¾ | 62½ | 61½ | 64 | 57 | 3.10 | 67. | | 98. | 49.5 | 60. | 57.7 | 42.2 | 49.9 | 74. | 29 | 1.786 |
| 58 | 57 | 63¼ | 63 | 61¼ | 65 | 57. | 5.21 | 62 | | 72. | 42. | 60. | 62.9 | 45.1 | 54. | 70. | 33 | 1.853 |
| 59 | 57¼ | 60 | 58 | 59 | 64 | 50 | 5.25 | 57 2/3 | | 67. | 26. | 53. | 69.4 | 48.1 | 50.7 | 90 | 37 | 1.830 |
| 57 | 52¾ | 61¾ | 54¼ | 56¼ | 66 | 49 | 10.37 | 57½ | | 68. | 27. | 51.5 | 69.2 | 52.2 | 61. | 76 | 42 | 2.516 |
| 55 | 57 | 60¼ | 56¾ | 58 | 63 | 48 | 11.77 | 60. | | 77. | 35. | 56. | 70.1 | 52.9 | 61.6 | 82 | 41 | 1.453 |
| 46 | 54¼ | 60¾ | 58 | 57¾ | 69 | 49 | 2.40 | 63. | | 86. | 37. | 62. | 65.6 | 50.1 | 57.8 | 76 | 36 | 2.193 |
| 52 | 50¼ | 62 | 53¾ | 56 | 64 | 44 | 7.41 | 63. | | 93. | 36. | 62. | 55.7 | 42.1 | 48.9 | 68 | 27 | 2.073 |
| 44 | 50¼ | 61¾ | 52¼ | 54¾ | 63 | 43 | 10.86 | 73½ | | 106° | 42. | 63. | 47.5 | 38.3 | 42.9 | 62 | 23 | 2.400 |
| 48 | 46¼ | 60 | 48¾ | 51½ | 63 | 37 | 3.87 | 75 | | 99. | 48. | 72. | 42.2 | 35.4 | 39.3 | 55 | 17 | 2.426 |
| 60¾ | 52¾ | 61 | 55¼ | 56½ | 64 | 46½ | 63.88 | 67⅓ | 0 | 89 | 40.9 | 62.9 | 56.1 | 42.5 | 49.5 | 686 | 28.4 | 22.199 |

The greatest Heat was 96° in January, and the lowest 45° in August 1819.

ATION.

Mean Temperature of the Air at the Cape of Good Hope, 67.3°
Do. Do. Do. Madras, .....85.1°
Do. Do. Do. Bombay,.....81.4
Do. Do. Do. Calcutta,.....78.3

# No. 4.

*A Table of the Winds which prevailed on the Neelgherries, from the 1st Sept. 1825, till the 31st of August, 1826, with the quantity of Rain which fell during the same period.*

| From the 1st Sept. 1825. till the 31st of August, 1826. | N. | N. E. | N. W. | S. | S. E. | S. W. | E. | W. | Bar. | No. of days. | Rain. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of days. | No. of days. | No. of days. | No. of days. | No. of days. | No. of days. | No. of days. | No. of days. | No. of days. | | Inches. | |
| September, .... | 2 | 2 | 1 | 2 | 2 | 1 | ,, | 5 | 15 | 30 | 3.40 | On the 9th of April, 1826, |
| October, ..... | 6 | 6 | 4 | ,, | ,, | ,, | ,, | 4 | 11 | 31 | 8.21 | there was a violent hail storm; |
| November, ..... | 2 | 20 | ,, | 3 | 1 | ,, | 4 | ,, | ,, | 30 | 10.39 | the ground was perfectly white, |
| December, ..... | ,, | 27 | ,, | ,, | ,, | ,, | 4 | ,, | ,, | 31 | 1.00 | and this appearance continued |
| January, ..... | ,, | 23 | ,, | ,, | ,, | ,, | 8 | ,, | ,, | 31 | ,, | until the next day. |
| February, ..... | ,, | 24 | ,, | ,, | ,, | ,, | ,, | ,, | 4 | 28 | ,, | N. B. This table may be considered as a fair criterion of the |
| March, ..... | ,, | 23 | ,, | ,, | ,, | ,. | 4 | ,, | 4 | 31 | ,, | several winds which may be expected to prevail on the Neelgherries generally throughout the year, and the quantity of rain may be considered an average supply. |
| April, ..... | ,, | 29 | ,, | ,, | ,, | ,, | ,, | ,, | 1 | 30 | 3.10 | |
| May, ..... | ,, | 16 | ,, | ,, | ,, | ,, | ,, | ,, | 15 | 31 | 4.57 | |
| June, ..... | ,, | ,, | ,, | ,, | ,, | 27 | ,, | 1 | 2 | 30 | 6.85 | |
| July, ..... | ,, | 1 | 5 | ,, | ,, | ,, | ,, | 23 | 2 | 31 | 6.54 | |
| August, ..... | ,, | ,, | 7 | ,, | ,, | 2 | ,, | 22 | ,, | 31 | 11.06 | |
| Total, | 10 | 171 | 17 | 5 | 3 | 30 | 20 | 55 | 54 | 365 | 55.06 | |

## No. 5.

### *On the Properties of Lactucarium, the Produce of India, by W. Twining, Esq. dated 1st December, 1827.*

At a former Meeting of this Society, I mentioned that some trials had been instituted at the General Hospital, to ascertain the properties of Lactucarium, the produce of this country; and stated, that the first instance in which it had been used, was a case of severe pains in the limbs, in the removal of which, it appeared to be very efficacious. I now comply with the request, at that time expressed by some of the members of the Society, in placing before them, more fully, the case of Joachim, which was then alluded to, as well as some others in which the medicine was used; and have to regret that the result is less favorable than the early part of Joachim's case seemed to promise. The cases in which Lactucarium has been found most useful in Europe, are those of cough, arising from an irritable state of the air tubes and lungs: opportunities have not yet occurred of employing the remedy here in such complaints.

*Case* 1.—Manoel Joachim, a Portuguese, aged 30, was admitted into Hospital on the 19th April 1827, with an ulcer behind the right side of the glans penis, so deep, that there was some apprehension that the glans penis would be destroyed.

The disease was of two months duration, and the patient was suffering from pyrexia, and severe pains in his limbs. He took Pil. Hydrarg. P. Antimon. Extract Hyoscyami, cc. grs. v. Opii gr. i. at bed time, and a purge next morning.

An antimonial mixture, with sulphate of Magnesia, was given daily, and the above pills every night. A milk diet.

In eight days the pyrexia was abated, the above medicine was omitted, and he took Plummer's Pill daily, and Hyoscyami with Opium at bed time, after which Sarsaparilla and Mudaar were given, as well as Dover's Powder, antimonials, and Opium with little or no benefit.

On the 8th June, the pains were not alleviated; four grains of Lactucarium were given at 9 P. M. and repeated at midnight.

9th June, not better; eight grains of Lactucarium at bed time, and repeated at midnight.

10th June. Some relief from pain, and he slept last night; medicine to be repeated in same quantity every night.

13th. Pains nearly subsided; he is cheerful, and sleeps well.

14th. Had very little pain in the left knee last night. Medicine repeated.

15th. No pain,except in the left knee; 12 grains of the medicine at 9, and repeated at midnight. Tepid bath.

26th. The medicine has been continued in the same doses, and he is free from pain.

Discharged on the 27th June, 1827.

The same patient returned to hospital on the 25th of July, having been ill five days; he was suffering from pains in his shin bones, elbows and humeri, and had very little pyrexia. After a tepid bath, he was purged with castor oil, and took lactucarium in doses of 8 grains; after two days, the dose was repeated at midnight. Through a mistake, in placing the cover of this man's pill box on that containing calomel pills, he was salivated, and his pains entirely removed.

Discharged 3d September, 1827.

Hence it appears that the pains were only relieved for a time by the first employment of lactucarium, and the occurrence of salivation on the second occasion precludes us from forming any very decided opinion concerning the case when received into hospital on the 25th July.

The same man has returned to hospital again only a few days ago,with very severe pains in the arms and back, so that the relief from pain, derived from the salivation, has not been of much longer duration, than that which was, in the first instance, attributed to the lactucarium. I regret that no more of the medicine remains to try its effects again in the same patient.

*Case* 2.—W. Williams, ætat. 49. A discharged sailor, three months in India, admitted into hospital on the 12th October, 1827, with pains in the region of the liver and at the lower angle of the scapula; no py-

rexia. Costive. These complaints were removed by a steady system of purgatives.

On the 17th November, he was suffering pains in the shin bones, which though most severe in the day time, were so bad at night, as to prevent sleep. The pains could not be ascribed to mercury, for he had only taken ten grains of calomel and the same quantity of blue pill since his admission into hospital.

On the 17th Nov. ten grains of lactucarium were given in pills at bed time, and repeated at midnight.

This treatment was followed for ten days, without any decrease of the pains, or any perceptible effect of any sort.

*Case* 3.—Pedro, a Portuguese sailor, 21 years of age, of small stature and melancholic temperament, came to hospital on the 21st of August, 1827, suffering from pains in all his limbs and joints, which had commenced after a diarrhœa on board the ship:—no pyrexia on admission.

Various remedies were employed without benefit, and on the 22d Nov. lactucarium was tried as in the two previous cases; the tepid bath was used at the time, and the medicine repeated every night at bed time, in the dose of ten grains, and again at midnight. On the 27th, the pains were unabated, and, therefore, the medicine was omitted; it did not appear that the lactucarium produced any sensible effect on the constitution in this case.

*Case* 4.—George White, ætat. 27. A stout man, of dark complexion, came to hospital on the 3rd November, 1827, with dysentery in a very severe form, and his life was only saved by the most diligent care and strict antiphlogistic treatment. The disease was gradually abating, and it was desirable,on the 17th November, to give some mild anodyne, which might allay irritation of the bowels without producing the other effects of opium; therefore, former remedies were omitted, and he took five grains of lactucarium on the 17th November, night and morning, and repeated the same dose twice a day, on the 18th. The patient experienced great relief from irritation of the bowels; he had previously six or seven evacuations in the 24 hours, and had been passing much viscid slime, with the stools. On the 19th November, he had three figured stools in 24 hours, and

passed no slime; the medicine was omitted, and he has continued convalescent, requiring only a few small doses of rhubarb to keep the bowels open; he has taken no medicine since the 25th November.

It is proper to state, that after the acute stage of dysentery had been arrested by antiphlogistic treatment, there had been a cessation of improvement in this case, and though free from pain or fever he continued to pass vast quantities of slime with some blood, when it was found necessary to affect the system slightly by mercury, which produced a most decided change for the better, and it was on the occasion of omitting the mercury, on the 17th, (which he had been taking in the form of blue pill and calomel, each five grains twice a day,) that the lactucarium was given on the 17th and 18th November.

*Case* 5.—John Tully, ætat. 42. A stout man, suffering severely from acute dysentery, admitted 31st May, 1827. On the 13th June, a mild anodyne was requisite to procure sleep; eight grains of lactucarium were administered, and repeated in six hours, but produced not the least benefit.

*Case* 6.—John Fowler, a stout sailor, of dark complexion, was in hospital from 16th to 27th August, with pains in his limbs, preceded by a glandular swelling in the groin, but no chancre; cured by tepid baths, and Dover's powder. He remained well only a few days; and after suffering for two months returned to hospital on the 1st November 1827, having then pains in his limbs, not attended with pyrexia. He was treated with purgatives, warm baths, Dover's powder, and other remedies without benefit. Lactucarium was administered daily, from the 17th to the 27th November, ten grains being given at bed time, and the same quantity repeated at midnight. At the end of 10 days the pain remained unabated, and the medicine had produced no perceptible effect, except diaphoresis. On one night, this patient of his own accord, took the whole 20 grains at once, hoping thereby to procure rest; but the pains were not diminished, although he perspired profusely.

The results of the above cases would not induce us to expect much benefit from the lactucarium produced in India; that which has been supplied to the hospital for use, appears to have produced very little effect of any sort, except in cases 1 and 4, and those under circumstances rendering the efficacy of the remedy doubtful.

Note by the Secretary.—Lactucarium from the same specimen as above employed, has been administered in several cases at the European Insane Asylum with decided good effects. In one or two, combined with gentle aperient remedies, it appeared to effect a return to tranquillity in a few days. In one case in particular, in which the disease assumed a melancholic form, and the patient had religious hallucinations, accompanied with timidity and nervous depression, great benefit was derived from its continued use. The dose usually prescribed was 12 grains at bed time repeated daily, till an evident amendment appeared.

## No. 6.

### *Extract of a Report on the Medicinal Garden at Mussoorea, addressed to the Honorable Sir C. Metcalfe, Bart. in charge of the Honorable Company's Botanic Garden, Calcutta. By J. F. Royle, Esq.*

[Communicated by the Medical Board.]

More than a twelvemonth having elapsed since the establishment of the experimental Medicinal Garden in its present situation, I beg leave to make a general report upon the success which has hitherto attended the undertaking.

The garden is situated on a shoulder on the northern face of the range which runs between the Ganges and Jumna, about a mile to the westward of where the houses at Mussooree have been built. The latitude is about 30°. 27′ N. Longitude, 78°. 2′ E. and the elevation 6500 feet above the level of the sea. The direction of the garden is that of the range itself, which here, is nearly E. and W. The aspect, which is northern, would be objected to in England; but as the object, in this country, is to obtain a cool climate for the cultivation of European plants, the greater cold of a northern aspect is rather to be sought for, than avoided, particularly as it enjoys the further advantage of its more tardy vegetation, being less liable to be blighted by unseasonable frosts; for this reason, the vineyards in France, exposed to the north, are less liable to be injured by late frosts, than those which the greater warmth of a southern exposure calls into premature vegetation.

The garden is completely sheltered on three sides: on the south by the range itself; and on the east and west by the lateral arms which it shoots out towards the north; on this last side, the shelter is less perfect, but still considerable, from the oaks and rhododendrons which grow immediately beyond the site of the garden; and it will become more so, in proportion to the growth of the hedge which has been planted. From the more oblique course of the sun in winter, the solar rays are prevented falling on the garden early in the morning and evening, by what forms its protection from the violence of the winds; but in the season of cultivation this disadvantage does not operate, as the rays falling more perpendicularly induce a rapid and vigorous vegetation.

Irrigation, which forms the most important operation in Indian culture, does not here require such incessant attention, as a few showers generally fall in the months of April and May, before and subsequent to which the ground is sufficiently moist. By the introduction of bullocks and puckals,the failure of rain may however always be provided against, as the spring below the garden affords a sufficient supply of water in the driest seasons.

The mountain mass is composed of clay slate, but compact; and in some places a kind of tufaceous limestone is found at the top of the range and in the vicinity of the garden. The soil is a good clayey loam, of which the upper part from the decay of vegetable matter is of a blackish colour. Previous to the Goorkha conquest,the ground was employed for the cultivation of wheat, but subsequently to that as a station for buffaloes, so that in some places the soil has been much enriched; and as a buffaloe shed still exists in the immediate vicinity, animal manure may be procured when required; while leaf mould in any quantity can be obtained all round the site of the garden.

But as temperature is that which has the most important effect upon vegetation, I have endeavoured as much as in my power to ascertain the mean temperature of the place, as well for the whole, as for different seasons of the year. The latitude being nearly that of Shiraz and Cairo, and of the southern boundaries of Barbary and Morocco, the solar rays must of course be powerful. But as its elevation is also considerable, the causes which produce a reduction of temperature as we ascend in the atmosphere reduce its temperature to that of the southern parts of Europe; Humboldt calculated that in the temperate zone every hundred metres of ascent (328 feet) diminishes the mean temperature of the year

as much as an increase of 1° of latitude. De Candolle, with more immediate reference to the growth and cultivation of plants, and from observations made in France, considers that an elevation of 328 feet corresponds not to 1°, but to half a degree of latitude. By the former ratio the climate of Mussooree would correspond to that of the south of England, and by the latter to that of the south of Europe. It is with this that the observations which have been made at the Mussooree most nearly coincide; the results reduced to a tabular form I have the pleasure of annexing.

| | Means of all the observations. | Maxima during each month. | Minima during each month. | Means of the maxima & minima. | Differences in temperature of the several months. | |
|---|---|---|---|---|---|---|
| January, | 42°45 | 51°5 | 34°5 | 43° | 2°55 | A violent storm occurred on the 6th & 12th Feb. which is unusually late for snow to fall. |
| February, | 45 42 | 63 | 27 | 45 | 2 97 | |
| March, | 53 63 | 69 | 37 | 53 | 8 21 | |
| April, | 59 83 | 77 | 41 | 59 | 6 2 | |
| May, | 66 01 | 78 | 49 | 63 5 | 6 18 | |
| June, | 67 12 | 74 | 61 | 67 5 | 1 11 | |
| July, | 67 35 | 71 | 63 | 67 | 2 3 | |
| August, | 66 43 | 69 | 63 | 66 | 0 92 | |
| September, | 64 04 | 69 5 | 57 | 63 25 | 2 39 | |
| October, | 57 25 | 66 5 | 48 | 57 25 | 6 79 | |
| November, | 50 2 | 57 | 48 | 52 5 | 7 25 | |
| December, | 45 2 | 55 | 29 | 42 | 5 | |
| Mean temperature of the year from the means of all the observations, | 57°04 | | | 56 5 | | Mean temperature of the year from the means of the maximum and minimum in each month. |

The above results, though they cannot be considered as strictly accurate, afford I feel confident a near approximation to the mean temperature of the Mussooree climate, which may be safely considered as about 55° at the top of the range. But the garden being from its sheltered situation deprived of the cooling effects of the breeze which blows on the top of the range, will be warmer in summer, and colder in winter, in consequence of a smaller proportion of the solar rays falling upon it, and also on account of the snow being less quickly dissolved by the dry air which blows over the mountain. The range therefore of the thermometer, which at Mussooree is about 50°, will be somewhat more at the garden, but the mean temperature must be nearly the same. The climate is re-

markable for its equability of temperature from night to day, from day to day, and also in a great measure from month to month. The nights are generally mild and still, and as this stillness continues until 9 or 10, the heat feels more oppressive from eight to ten than at any other time of the day, and the maximum of temperature is nearly attained at the latter hour, after which all accumulation of heat is prevented by the cooling effects of the breeze which ascends from the vallies. The transition to the rains makes hardly any difference in the temperature, and at their conclusion the sky is clear and the air mild.

From the middle of November, the weather becomes cold; in December storms occur and snow falls, but seldom lies on the top of the range for more than eight or ten days at a time; in sheltered places it of course is longer in becoming melted. In January and February, the weather is steadily cold: in the latter month one of the severest snow storms of the season occurred, as well as the minimum of temperature during the year. The mean temperature of the winter months may be considered to be about 45°. The thermometer is frequently near, but seldom below the freezing point. Hence no cultivation can take place, though in the plains it is in these months only that the culture of European plants succeeds.

In Europe the revival of nature takes place in that month whose mean temperature reaches 42°. or 46°. 4. but at the Mussooree, from the milder winter, the heat required is probably greater, as the reaction in vegetation takes place at the beginning of March, which may be considered the spring month, and its temperature 53°. being 8°. above that of February, is more than is sufficient for the developement of vegetation in Europe, where the analogous increase, which amounts to 10°. or 12, takes place between April and May. The similarity of the equalizing effects of the air on temperature, to what is produced by the sea, is here observable; for it is remarked by Humboldt that the increase of the vernal temperature is small (scarcely 7°.) and equally prolonged wherever there is an insular climate. Here the addition of temperature, to that of its immediate precursor of the months of March, April and May, is respectively 8°. 6°. and 6°.

The months of April and May to the middle of June, may be considered the summer months: the heat is never great, nor is the decrease of temperature even considerable; occasional showers enliven vegetation, and the breezes ascending from the plains prevent all accumulation of

heat ; whilst the temperature 63° 5. is sufficiently high to promote the healthful growth of plants, and the ripening of the seeds of some ; though not favourable I suspect for that of others, on account of the accession of the rainy season.

This commences about the middle of June, and continues to the middle of September. The atmosphere is frequently cloudy, and showers of rain fall almost every day. Little change, however, takes place in the temperature, from the warm weather to the rains, and the climate remains remarkably equable, with a mean of 66°, which only differs about 2° from both the warmest and coldest month of the rainy season. The moisture of the atmosphere must contribute considerably towards preventing an increase of temperature. Its effects are observed in the springing up of plants, such as the scitamineæ, which require heat and moisture : while the trees become covered with mosses and ferns. The rainy season is extremely favorable to the growth of vegetables, but it can only be ascertained from experiment whether it will be equally so for the ripening of seeds.

At the conclusion of the rains, or in what may be called the autumn, the air is extremely mild, still and clear: the effects of the latter may be observable in the more rapid decreasing temperature, which had during the cloudy season remained so uniform. This season will probably be found particularly favorable for the ripening of seeds.

This climate of Mussooree leads to a consideration of its vegetable productions, which will be found to bear a considerable resemblance to those of European countries, and confirm the analogy of the climate of the place in question, to that of the southern parts of that continent. A difference in vegetable productions does not always prove a difference in climate ; for some parts of North America, as well as of New Holland and the Cape, bear a striking resemblance in soil, climate and elevation to parts of Europe ; though not a single European plant is to be found: but a great similarity in vegetable production seldom or never occurs without a close resemblance in climate.

The necessity of having a climate similar to that of their native country for the cultivation of plants which are required to retain all the medical virtues which they naturally possess, is obvious; if we attend to the fact, that too great cold will freeze the sap, cause a rupture of the vascular system, and a destruction of vegetables ; while heat is a stimu-

lant necessary for their healthy growth, and for the elaboration of their proper juices: thus several species are known to secrete, in warm countries, juices of which they are destitute in cold ones. The ash gives manna in Calabria, but ceases to do so towards the north. The grape in the south of Europe secretes much saccharine matter, but in the north an excess of acid.

Heat and moisture united are particularly favorable for the growth of vegetables, as may be witnessed in tropical climates. Both, we know, diminish by degrees as we recede from the equator, or ascend above the level of the sea, and both are moderate in the Mussooree climate; for though the removal of pressure accelerates evaporation, yet the more frequent occurrence of rain in mountainous countries prevents any excessive dryness, while the moderate temperature, which is also, like the atmospherical pressure, remarkably equable, preserves an uniformity of evaporation. The climate might, however, be designated a dry one, if it were not within the influence of the periodical rains. But even during these, there is some degree of evaporation, in consequence of the rain that falls, immediately running off; and from the constant breeze that blows, an incessant renewal takes place of the atmospheric strata, of which each portion has its capacity for moisture as well as for heat encreased by rarefaction.

We may, therefore, conclude, that the nourishment afforded by air holding water in solution, will never be so excessive as to render the plants grown in the Mussooree climate of a loose texture and watery composition; while that degree of dryness of the atmosphere arising from its holding but little water in solution, as is the case in Africa, or from its remaining at an uniformly low temperature, as in Kamtschatka, being equally unknown, there is no danger of a check to the proper growth of plants.

Another effect produced by the rarity of the atmosphere, is its admitting a free passage to the rays of light, which in proportion as they are unobstructed, have their power undiminished, and thus produce a more vigorous vegetation. The deprivation of light is known, as in blanching, to induce, in vegetables, a lengthening of substance, a looseness of texture, and whiteness of colour.

Hence, as Mirbel says, vegetation, in ascending above the level of the sea, undergoes modifications analogous to those which take place in proceeding from the equator to the poles. The phenomena which, in the latter case, take place by insensible degrees, succeed one another rapidly on the slope of mountains. Here lowness of temperature, dryness, and duration of light are all found, besides diminution of pressure, and a less abundant supply of substance, abounding in carbon, from the decomposition of organized bodies; obstacles, therefore, occur in mountains to plants enlarging their substance and lengthening their stems, while the brightness of the light and the length of the days produce a vigorous vegetation and a hardening of all the parts of plants.

As mountains situated in hot countries embrace every variety of climate, they are capable of producing the plants of both temperate and polar regions. To succeed in the cultivation, therefore, of the plants of any particular country, it is first requisite to determine the height to which it is necessary to ascend a mountain, to obtain a similar climate. This may be done either by making a series of observations on the temperature of particular heights, or by noting the vegetation peculiar to each, draw unerring inferences with regard to what may successfully be cultivated at each successive elevation.

The climate of the Mussooree having been shown to partake, in the comparative warmth and moisture of the rainy season, of the characteristics of a tropical climate, and in its general temperature, of the coolness and dryness of more northern latitudes, its vegetable productions will likewise be found, during the rains, to have some affinity with that of tropical countries, while its general vegetation may be characterised as having the closest analogy with that of European climates.

This tropical affinity is not observed in trees, shrubs, and such plants as would be exposed to the cold of winter, but in such as have perennial roots and annual stems. Hence, neither palms nor plantains are met with, nor the magnificent climbers found at the base of the mountain. But of the tropical family of Scitaminea, which in the Andes are also found at an elevation of 6600 feet; several species of the genera Hedychium, Globba, Kæmpferia and Roscoea grow here, in great luxuriance, and flower during the rainy season. The Orchideæ likewise, though

common to both tropical and temperate climates, yet in the largeness and showy nature of the flowers of many genera, resemble those of hot and moist countries; while others are small, inconspicuous and singularly formed, like those of temperate climates.

Both those families of plants being endowed with perennial tuberous roots sunk in the ground, are protected from the frost, and thus enabled to live throughout the winter, and until the moisture and warmth of the rainy season excite vegetation, and promote the growth of their succulent and herbaceous annual stems.

The resemblance to the plants of India and warm countries is moreover observable in species, generally only single ones, being found of several Indian genera, such as of Balsam, Begonia, Justicia, Commelina, Hedysarum, Indigofera, Dioscorea, Achyranthes, Deringia, and one or two of the Cucurbitacea. All of these flourish and flower in the rains: the Balsams, Begonia, and Commelina, in looseness of texture, have the closest alliance to tropical vegetation. Of the shrubs and trees belonging to genera, of which species are also found in warm countries, may be enumerated species of Jasmine, Myrsine, Ficus, Euphorbia, Mimosa, a few of the Leguminosæ, Laurenæ, and Aproguea; but of these, species are likewise found in more northern latitudes. A species of bamboo is likewise found here, and is much used for economical purposes; but its roots only are perennial, while its annual shoots are levelled with the ground by the first fall of snow.

The grasses also, which at all other seasons form a short close sward, in the rains shoot up in many places to two or three feet in height. The magnificent climbers Bauhinia racemosa and Robinia macrophylla, found at the foot of the hills, are here supplanted by species of Smilax. Some of the trees also, in the showey nature of their flowers, resemble the arboreous vegetation of tropical countries; of these may be instanced the Rhododendron arboreum, Symplocos racemosa, and Andromeda ovalifolia.

The great preponderance, however, of European plants will be instantly perceived; as of these among large trees may be mentioned, the Oak, Rhododendron, Elm, Maple, Hornbean, and Walnut, as well as the varnish tree of Japan; while among those of a smaller kind, are three spe-

cies of Cornus or Dog-wood; one Holly, two of Euonymus or Spindle tree; a Viburnum symplocos, Andromeda, Mulberry, and Willow. A little below the site of the garden two species of Laurel and one of Millingtonia are found as trees; a Mimosa and Cocculus laurifolius as shrubs.

The fruit trees found on, or on the sides of the Mussooree range, are, the Apricot, Peach, Cherry, wild Pear and Pomegranate; all, with the exception of the first, of very inferior quality. Very tolerable apples are, however, procured from the villages on the northern face. The Raspberries, Brambles, Barberries, Way-faring tree, and Coriaria Napalensis, also afford fruit, though of a smaller kind, which is much eaten by the hill people, and occasionally by European visitors.

Of shrubs, there are three species of Jasmine, three of Barberry, four of Rubus, two of each of the genera Daphne, Rhamnus, Spiræa, Myrsine, Vitis and Smilax. One species of each of the genera Clematis, Hydrangea, Ivy, Rose, Lonicera, Hamiltonia, Triosteum, Holboellia, and a Rubia, with annual stems, of which the perennial roots are used for dying, as the Rubia tinctorum or Dyer's Madder is at home.

Of herbaceous plants, there are several genera and species of the great European families of Umbelliferæ, Compositæ, and Labiatæ, as well as of the Stellatæ, which are more specially peculiar to the northern temperate zone. The Gramineæ also, in their genera and forms, resemble European grasses. Several of the Cruciferæ, Orchideæ, and herbaceous Leguminosæ are also found. Many of the herbaceous plants have tufts of radical leaves, from the centre of which arises a scape loaded with flowers, as is witnessed in other cold and mountainous countries.

The following are the most common genera, of which species are found on the Mussooree range in flower at different seasons of the year:—

Salvia, Morina, Valeria, Iris, Scabiosa, Galium, Plantago, Cynoglossum, Borago, Androsace, Anagallis, Lysimachia, Campanula, Violet, Gentian, Swertia, Bupleurum, Sanicula, Parnassia, Lily, Disporum, Curculigo, Convallaria, Juncus, Rumex, Epilobium, Polygonum, Paris, Saxifrage, Silene, Stellaria, Sedum, Agrimony, Potentilla, Larkspur, Columbine,

Anemone, Thalictrum, Ranunculus, Geranium, Polygala, Anthyllis, Lathyrus, Vicia, Habenaria, Hypericum, Arum and Misletoe.

The omission of Cryptogamic plants in the above catalogue is of less consequence, as it has been generally observed, that the more simple the organization of a body is, the more generally it is distributed. Of the Ferns, Mosses, and Lichens, there are, however, several genera and species. One thing is remarkable, that though they are characteristic of a cool climate, they are here most prevalent and luxuriant in the rainy season; though this is the only part of the year in which plants, having an affinity to tropical ones, are to be seen, a sure indication of the moderation of temperature, as well as of the moisture of a climate which can support the plants of such opposite climates.

Besides the fruit trees and plants which afford the inferior sorts of edible berries, others may be enumerated as affording useful products, independent of the several trees which afford valuable timber. From the roots of the Barberry is prepared an extract called *rusout*, much used in native medicine; the Cheretta; a species of gentian called *Kurroo;* acorns, and the roots of the Lonicera, called here *dandoo*, all form articles of the native Materia Medica; while the Taraxacum and a species of mint promise to be useful substitutes for the European officinal species. The Rubia munjista has already been mentioned; the bark of the Symplocus racemosa or *Lodh* is likewise used as a dye; the varnish tree might be made use of; and the Daphne cannabina, from which paper is made in Nepal, is abundant. A species of onion, used by the hill people, is also found here, as well as the Scorzonera bapleuroides, which they eat as a sallad.

Though the above has led into rather an extended detail, the information will be found, eventually, to be of considerable use where the object is to cultivate the indigenous plants of several countries and climates; and though the great variety of those of the Mussooree may be ascribed partly to the climate, yet the nature of the soil has considerable influence. As it has been elsewhere remarked, that the most luxuriant and varied vegetation is found in soils having an intermixture of calcareous matter; and though most plants have a determinate climate to which they are best adapted, they may yet be reared in others, though they will succeed best in those which are similar to their own, particularly if

these already produce plants indigenously, which botanical analogies point out as allied to those we wish to cultivate.

At all events, a sound knowledge of theoretical principles can alone lead to successful practice, and the Virgilian maxim has moreover been observed:

" At prius ignotum ferro quam scindimus æquor, ventos, et varium cæli prædiscere morem cura sit, ac patrios, cultusque habitusque locorum, et quid quæque ferat regio, et quid quæque recuset."

From the above view of the climate and indigenous productions of the Mussooree, it is evident, even if we had had no experience on the subject, that the cultivation of the useful and medicinal plants of European climates might easily be undertaken in a climate where the temperature is so moderate, and the vegetation so closely allied. The rains, however, present an anomaly, which experiment alone could determine whether injurious or innocuous to European vegetation.

The first kitchen garden vegetables were sown on the Mussooree about the 20th of February, and produced peas and some other vegetables about the middle of May, though sown in an unfavorable situation, and exposed to strong and drying winds. In the beginning of May, 1827, seeds of both medicinal and kitchen vegetables were first sown in the present garden, and produced very luxuriant plants, which were seen in the middle of July. They were again sown at this time, and in the end of September, fine turnips, carrots, beet-root, cauliflower, cabbage, peas, lettuce, radish, cress, and cucumbers were daily obtained. This year a heavy snow-storm having occurred in February, the commencement of cultivation was obliged to be deferred to a later period than last year. Peas, however, came in June, and several plants ripened their seed before the coming on of the rains. Most of the abovementioned vegetables, with the addition of the knol-khol, spinach, celery, and artichoke, were in a very flourishing state, when I visited the place in July. Several of those also which are found in Indian gardens, were also doing remarkably well—as the gourd, melon and egg-plant tribe, with some others, as well as the carminative seeds, coriander and Anethum *Sowa*.

English cauliflowers, savoy and brocoli, from seeds sent by the Horticultural Society of Calcutta, produced remarkably fine plants, but un-

fortunately did not flower, and, therefore, no seed could be obtained: but three varieties of peas, as many of radish, and one kind of lettuce, produced ripe seed before the accession of the rains.

Potatoes are generally planted in March, and are fit for use in October.

From the above view, it appears that Europe vegetables may be sown on the Mussooree range from February to the end of July, and that vegetables, by attending to a proper succession of crops, may be obtained from May till October. It must not, however, be understood by the above account of the plants being in a flourishing state, that they were all in a superior state, as vegetables for the table; though some were as fine as any I have seen in India, yet generally this can only be the result of particular attention to the culture of each. Here every thing was obliged to be left entirely to the care of natives, and whatever was produced depended solely upon the climate, which has left hardly any thing to be wished.

Several of the vegetables ripened their seed before the accession of the rains; others, last year, at their conclusion. The peculiar effects of the rains I have not yet had means of ascertaining so accurately as I could wish.

Of the other useful plants which have been introduced into and succeeded in the Mussooree garden, may be instanced the wheat and barley of the hills. The former, a very singular species, from an elevation of 10,600 feet on the borders of Chinese Tartary; and the barley is that commonly mentioned by travellers in the hills, by the name of *Ooa*; the Hordeum cœleste of Colebrooke, brought from Nako, an elevation of 12,000 feet. Both were sown in October, and the grain ripened in the end of April.

The Cichorium intybus, or wild succory, used in the south of Europe as fodder for cattle, succeeds here remarkably well. But I have never seen any thing more luxuriant than the different kinds of clover which have been introduced, more particularly the broad red clover and the white Dutch; the Trifolium pensylvanicum and hochianum were also equally flourishing, as well as the common flax from English seed. I hope in time to see the hop and other useful plants equally at home.

As indications of the climate, it may also be useful to mention, that many of the flowers commonly seen in gardens flowered here. The Sweet Pea and Mignonette were particularly fragrant, and an Aster and a Centaurea, from Cashmere, in a very flourishing state; as well as the following, with many other plants from seeds from European botanic gardens, sent me by Dr. Wallich.

In the following list the native country of the different plants is mentioned opposite their botanic names, in order to give not only an idea of the country and kinds of plants which have succeeded here, but to lead to the introduction of others which may be allied in botanical features, or require a similar climate.

Antirrhinum majus, S. of Europe.
————————Pyrenees, Pyrenees.
Bunias erucago, South of Europe.
Lotus (tetragonolobus), purpureus, South of Europe.
Myagrum rugosum, ditto.
Spartium junceum, ditto.
Anthemis altissima, S. of Europe.
Asphodelus fistulosus, ditto.
Spartium multiflorum, Portugal and Barbary.
Plantago coronopus, Barbary and Europe.
Agrostemma cæli, Roso and Sicily.
Astragus cicer, Europe.
Centaurea Melitensis, Malta and Montpelier.
Euphorbia lathyris, Europe.
Xanthium strumarium, ditto.
Jasione Montana, ditto.
Silene quinquevulnera, England, France, Spain.
Isatis Prœcox, Hungary and about Astrakhan.
Poterium polygamum, Hungary.
Potentilla umbrosa, Mount Taurus.
Convolvulus erubescens, New South Wales.
Ipomœa hepaticifolia, Ceylon.
Nolana pyaradoxa, Brazil.
Chenopodium Ambrosioides, Mexico.
Trifolium pensylvanicum, N. America.
Phaseolus paniculatus, Illinois.

From the foregoing account of the plants which have succeeded in the Mussooree garden, it is evident that herbaceous plants of medicinal power might likewise be successfully cultivated. The experiment has been made as yet with but few, but the success has been such as to warrant the hope of a successful issue with others.

Henbane (Hyoscyamus niger) was first sown in the beginning of May: the plants were seen in a luxuriant state about six feet high in the middle of July: seeds were again sown at this time, and the plants which they produced I saw at the end of September about four feet high. Extract in small quantities was made from the plants, and specimens sent to Calcutta. It was also sent to several medical officers in the upper provinces, who have all spoken highly of it as a medicinal agent.

The principal crop of this year, however, failed. This was sown in March, and ought to have been fit for use in July; but owing to no rain having fallen on the Mussooree Range during the summer months, and the gardeners having neglected to water the plants, many of them died, and the others did not thrive. The few plants growing in the neighbourhood of others, that were occasionally watered, were about three feet high, and as healthy as those of the former year, which depended for water entirely on the occasional showers falling there during the months of April and May.

The Thorn Apple (Datura stramonium) being indigenous in the hills, had only to be introduced to succeed here. It now sows itself, and grows luxuriantly; any quantity of the extract or tincture may, therefore, be prepared. An undescribed species of Datura, procured from seed sent from Brazil, has also succeeded here remarkably well. The bruised leaves have a very powerful narcotic odour, and promise to afford a medicinal agent of great efficiency.

The Atropa physaloides, of which the seeds are used by the native Hukeems for allaying pain and inducing sleep, were also sown here in the beginning of May, and produced plants in the middle of July about 12 feet high; and the seeds sown at that time produced plants 6 feet high by the end of September. It thrives, therefore, as luxuriantly as the others.

The Acorus calamus, which neither in Botanical characters, nor sensible properties, differs from the English plant, is perfectly naturalized here; as well as a species of mint indigenous in the hills, which promises to be an efficient substitute for the officinal species. The saffron was introduced from Cashmere, but has not yet flowered. The species of Taraxacum which is indigenous here, will afford any quantity of the extract, of which specimens were sent to Calcutta; and a species of Cucumis nearly allied to the Colocynth, is found in considerable quantities at the foot of the range, the inspissated juice of the fruit of which possesses purgative properties.

The most important, however, of the medical plants, of which the cultivation has as yet been attempted, is the Hill Rhubarb (Rheum Emodi of Dr. Wallich.) Of this, only a few roots were at first introduced from the Choor mountain; but these throve so well throughout the summer, winter, and rains, that the cultivation has been successively encreased.

This year several beds of seeds having been sown, a great number of young seedlings were obtained, which will be planted out in the ensuing season, and enable me to encrease the cultivation indefinitely at but small cost; so that, in time, a regular supply of the roots may be obtained for the medical depôts.

As Mr. Twining, Mr. Superintending Surgeon Langstaff, Mr. Cathcart, and several other medical officers have tried and found this an efficient substitute for the foreign Rhubarb, I have no doubt of its becoming a valuable addition to the Materia Medica of India.

In order to ascertain the quantities of the wild Rhubarb that might be depended upon for supplying the depôts until the cultivation is sufficiently advanced to allow of its roots being dug up, I this year visited the Choor mountain, and found its sides, in two places, at an elevation of 10,000 feet, covered with the wild Rhubarb. From one of these places 200 pounds were last year obtained, and sent to the Agra depôt. A similar quantity I hope to be able to obtain in this and subsequent years, until the cultivated Rhubarb is fit for use.

By some late authors, the Himalayan Rhubarb (Rheum Emodi of Wallich) is supposed to be the species which yields the Rhubarb of commerce; but as I am not acquainted with the facts from which this opinion has been formed, I know not whether it has been so proved as to have placed the question beyond a doubt. But from the looseness of texture of the dried root of the Himalayan Rhubarb, in comparison with that of the Rhubarb of commerce, as well as from its very different sensible properties, and medicinal powers, as fully stated by Mr. Twining, in the 3d volume of the Transactions of the Medical and Physical Society of Calcutta, and also from this species never having been produced from any of the seed procured from the places where the Rhubarb of commerce is produced, I feel inclined to think that if this species produce any of the Rhubarb of commerce, it must be incidentally only, and of course in common with some, if not several other species.

I feel happy, however, in having it in my power to inform you, that owing to Dr. Wallich having sent up some of the roots of the Rheum palmatum, packed up in moss, which he had obtained from England, and one of which vegetated, I hope also to have it, in time, in sufficient quantities, as the plant is now in a flourishing state in the Mussooree garden.

The above enumeration of the successful cultivation in the experimental garden, of edible and medicinal plants of an herbaceous nature, leaves but little doubt of the favorable issue of a more extended experiment. It remains, however, necessary to ascertain the effects of the climate on perennial plants, or the useful trees and shrubs of European countries. Here also the success has been equal to what might have been inferred from the indigenous productions of the place ; though the experiment has not as yet been made on trees or shrubs actually imported from Europe, or the produce of seed of European growth, but only on such as we know to be allied in nature and habits to those which form the pride and ornament of the gardens of temperate climes.

The only plants procurable, and at the same time favorable for making the experiment, were the different kinds of fruit trees common in gardens. Of these several plants of each kind were sent up to the Mussooree garden at the end of the cold weather, and all, almost, as a matter of course, continued to thrive until the month of October. But then the fruit trees of warm countries which had been included in the experiment began to droop, and, as was expected, died during the cold weather. Of these may be instanced the different varieties of Orange and Lime, the Guava and Custard apple. The Peach, Plum, and Vine transported from the plains, where they had become naturalized, had their young shoots nipped by the frost, but their stems remained and branched out luxuriantly in the spring. The Apple, Pear, Quince and Loquat, likewise acclimated in the plains, flourished remarkably well throughout the year in the Mussooree climate.

The seed of the Apple, Pear, Vine, and Almond, which are brought down for sale by the northern merchants from Cashmere and Caubul, were also sown here, and produced plants which are in a flourishing condition.

In addition to the fruit trees formerly mentioned as being indigenous here, others which are common in colder parts of the hills have been introduced and are doing well ;—as the Black and Red Currant, the Gooseberry, the sweet yellow Plum called *Alloocha*, and a species of apple called *Paltoo*. Both the hill Strawberry, and that which is cultivated in the plains, and which ought to have been mentioned before, have only been introduced this year, but have produced very luxuriant plants.

Of other plants which have been introduced from colder parts of the hills may be mentioned six species of Fir and three of Birch,—the Horse-Ches-

nut, Juniper, Cypress, Poplar, Yew, Maple and Alder, as well as about a hundred species of rare plants which I collected during my last tour.

The foregoing account of the cultivation of the herbaceous and perennial plants of temperate climes in the Mussooree garden, together with the cultivation in the plains of the annuals of the same countries during the cold weather, affords a very rational prospect of ultimate success in the cultivation of many medicinal agents which we now import from a distance, and can use only when time has impaired a part of their efficacy. Respecting the cultivation of the annuals and perennials of warm countries, with the exception of such, however, as require a strictly tropical climate, I shall take an opportunity, at some future time, of detailing some facts and drawing some legitimate inferences.

## No. 7.

### *On Small Pox and Vaccination, by J. Tytler, Esq.; dated 7th June,* 1828.

In the present unsettled state of the public mind respecting the precise powers of Vaccine Inoculation as a preservative against Variolous Infection, every fact that has any tendency to throw light on the subject may be considered valuable. It is with this view that the following case is submitted to the Society.

A Mouluvee, belonging to the Printing Press connected with the Hindoo College, has three children. The eldest, a girl about ten years; the second a boy of six; the third an infant girl. In March last he informed me the eldest girl was attacked with severe natural Small Pox, and at the same time I was told that the disease was very prevalent in this city generally. In consequence, I strongly urged him to allow me to vaccinate his other two children; and after some persuasion he consented, and brought them to me for that purpose. From scales with which I was obligingly furnished by Dr. Russell, I vaccinated these two children of the Mouluvee, and three other native children. Of those, the Mouluvee's boy of six years and two others of the native children took the infection extremely well, but the little infant girl and one other child did not: accordingly, from the Mouluvee's boy, and another of those children which had taken, I inoculated the infant girl and the other child over again, and also a third child. Both those last took, but in the Moulu-

vee's infant it again failed. I inoculated her a third time from the successful cases, with as much attention as possible, but no appearance of vaccination took place. Four or five days after, her father informed me that confluent Small Pox, in its most extreme violence, had come on, and for some time he despaired of her life. However, she struggled through and recovered. Her brother, in whom the vaccination had succeeded, remained perfectly well.

Here then we see, in the same family, one child attacked by natural Small Pox; a second, successfully vaccinated, escaping with perfect immunity; a third, unsuccessfully vaccinated, suffering and hardly escaping with life from the worst form of the disease. It is difficult to imagine a more decided experiment in favour of Cow Pox. Is it supposable that the failure in the Vaccine Inoculation may have arisen from the natural Small Pox having influenced the constitution of the infant girl from the first? The whole period from the first child being attacked with Small Pox to its appearance in her, was about a month.

I may add, that the Mouluvee in question is a native of Persia, and much less swayed by prejudices and more easy to persuade than those of Hindoostan.

While on this subject I would beg to submit to the Society the propriety of inquiring into the exact nature of that disease among fowls, which is called Small Pox or *Maota* by the natives.

In Calcutta it is not much heard of; but up the country, where almost every one is compelled to keep their own stock, it becomes a very interesting matter. It generally appears in the rains, and seems highly infectious or epidemic; when one fowl is attacked, it is generally followed by a succession of others, so as sometimes to depopulate the farm yard. The symptoms are pyrexia and a refusal of food, soon after which pustules break out on the head, about the ears and eyes, and on the upper and lower surface of the tongue. Indeed, I believe they generally appear first in this latter situation. Afterwards they appear in different parts of the body, chiefly under the wings. The animal languishes for four or five days, and then dies.

Is this disease at all allied to human Variola? In its symptoms it bears a good deal of resemblance, and deserves, on that account, to be investigated.

## No. 8.

### *Case of poisoning by Laudanum, and on the Effects of a Native Poison; by F. H. Brett, Esq.*

On the 27th March last I was called to attend a young European, who had swallowed 3 oz. of Tinctura Opii an hour and half previous. When I arrived I learnt that a native doctor had given five grains of the sulphate of copper, which, from the smallness of the dose and paralysed state of the stomach, failed to produce any effort to vomit. There were now evident marks of the absorption of a portion of the poison into the circulation, and of its primary stimulating influence on the brain and nervous system. The muscular power was greatly increased. The capillaries of the tunica conjunctiva suffused with red blood. He struggled violently, but with the aid of assistants to secure him, I soon succeeded in conveying the esophagus tube into the stomach, and commenced with the apparatus, alternately introducing and withdrawing warm water, until the liquid appeared no longer impregnated with the laudanum.

During the operation his senses gradually revived. All preternatural redness disappeared from the eyes, and towards the latter part of the operation he was so much restored, as not only to be perfectly resigned to its continuance, but to be able to request I would not desist until I thought proper.

The case was quite satisfactory, but I have no doubt some considerable part of the poison was absorbed, for shortly after, drowsiness succeeded to the previous excitement. He was however conveyed to his bed, and with the aid of some strong coffee, and two draughts of vinegar and water, the sedatine effect in a few hours subsided. For the first two or three days he was much debilitated, but gradually regained his strength.

I may here embrace the opportunity of mentioning the frequent attempts at suicide amongst the hill-men, by means of a vegetable poison called *Jhur*. It is with this that they prepare the points of their arrows when hunting the wild boar, and they report the effects to be very rapid. In the ten months that I have had charge of the Hill Rangers I have been sent for on two occasions.

In the first instance, a Sipahi of the corps had taken about a drachm 12 hours previous. He was sufficiently sensible to explain what had occurred. He suffered excruciating agony, and a sensation of burning heat in

the stomach, and within his body in every direction, complaining also of pain in the head: pupils contracted, pulse quick and small, countenance depicting alarm and horror.

As he confessed having deliberately masticated the poison, I resorted to the syringe, in hopes some part might still be removed from the stomach, having first given an emetic. All must have been carried into the circulation long before. He expired in about an hour and half; extremely collapsed features, pupils dilated, cold extremities and feeble pulse having taken place about half an hour after I visited him.

In the other case I found there had only been an attempt, the brother of the individual having fortunately extricated the *jhur* from his mouth before he had time to swallow it.

One fatal case likewise occurred in the wife of a Sipahi, of which I was not made acquainted until death had closed the scene.

I made an experiment on a dog; an incision, the length of an inch, was carried down upon the superficial fibres of the glutæus maximus;—about half a drachm of *jhur* was introduced, and in the course of a few minutes the same quantity in an old wound; nothing apparent occurred for the first hour and half; after which the animal was seized with violent spasmodic action of the stomach, ejecting nearly its entire contents. It appeared to suffer great agony in the abdominal viscera, twisting its body in every direction, and foaming at the mouth; pupils contracted, pulse quick and small; expired after a collapse of fifteen minutes. I should mention that not more than a grain or two of the *jhur* could have been taken up by the absorbents, and when the above symptoms were produced both the pieces were removed.

Morbid appearances.—The liver extremely inflamed, cardiac half of the internal membrane of the stomach inflamed; peritoneum covering the external surface of the liver, stomach, and that part forming the large and small omenta also inflamed. The pulmonic and all the other abdominal viscera healthy.

From the few observations I have made, I conceive the following treatment, if consulted in any reasonable time, would be indicated, viz. imme-

diate evacuation of the stomach by an emetic, or the stomach pump, if the poison should have been chewed; and if symptoms of inflammation came on, bleeding largely, followed by a full dose of opium, and afterwards an oily purgative.

## No. 9.

### *Case of Hydrophobia, in which the Symptoms were suspended by the Exhibition of large Doses of Sulphuric Ether and Laudanum; by D. Butter, M. D.*

In May 1824, Mădhŭnī, a girl aged nine years, was brought to me by her father, Prem Goālā, an Ahīr (cowkeeper), in the bazar of the Gorăkhpŭr Light Infantry. She had been bitten about a month previously by a dog supposed to be mad, and three days before was attacked with all the symptoms of hydrophobia.

When I first saw her in her father's arms, her gestures and the expressions of her face were absolutely terrific. Her breathing was short, quick, and convulsive; her mouth extended so as to shew nearly all her teeth, which were covered with frothy saliva; and her eyelids dilated to an extraordinary degree, and overspread, as well as her eyes, with a puriform fluid. She screamed incessantly and with violence, and started wildly from the look of every stranger; and her body was every minute or half minute thrown into rigid extension by opisthotonic spasms. For three days she had neither eaten nor drank, and in consequence appeared greatly emaciated. The sight of water at this time invariably occasioned a shuddering, instantly followed by the spasms above mentioned.

M. Magendie's paper, in the Journal de Physique, on the promising result of the treatment of a case of hydrophobia by venesection and injecting water into the veins, not having then reached this country, and Dr. Shoolbred's successful cases having left in my mind an exclusive impression in favour of bleeding, I immediately opened two veins, but was disappointed by finding that no blood would flow.

Being thus thrown upon my own resources, and aware of the desperate nature of the case, I resolved to give a fair trial to the most powerful

anti-spasmodics, thinking that opium, although unsuccessful in the numerous published cases of hydrophobia, might have failed, solely from its not having been given in sufficient quantity.

Accordingly, at half past 6 A. M. I forced her to swallow 1 dr: of sulphuric ether and dr: ss of laudanum. No particular effect following, at 8 I gave dr: iss of ether and dr: 1 of laudanum;—in all, more than half an ounce of ether, and about 300 drops of laudanum.

Within a quarter of an hour after taking the last dose, a decided diminution of the symptoms appeared; and she began to be more composed, and to talk rationally, but with a sobbing respiration, like a person walking into a very cold bath. A little after, she complained of hunger, and with apparent relish, although with difficulty, ate a bit of bread. At 9 she made an attempt to drink, herself holding the cup in her hand; and succeeded, after some unsuccessful efforts, in which her hand, after being slowly brought to her mouth, seemed suddenly to be repelled on the surface of the water coming into her sight.

At this period, a stranger to the melancholy history of hydrophobia would have concluded, from her appearance, that the little patient was perfectly cured. She got up from the terrace on which she had been lying, dressed herself carefully, and talked quite sensibly and playfully; no appearance of her late dreadful suffering remaining, except her extreme emaciation, a slight sobbing in her speech, a hurried action of the muscles of deglutition in drinking, and a slight shuddering when she every now and then heard water poured into a large earthen vessel which stood near.

So striking was this change, that I almost allowed myself to be deceived for a moment into the belief that the danger was over. Till a quarter past 10 A. M. every appearance tended to strengthen this pleasing illusion; but at that moment a violent convulsion shook her whole frame, on her attempting to drink water; the disease speedily resumed its power, and she died at half past 10, nearly in the same state as that in which I first saw her, very suddenly; indeed, before I had made up my mind to add to the large quantity of narcotics which she had taken.

*Remarks on the above case.*

That the medicines given were the cause of the temporary removal of the hydrophobic symptoms cannot, I think, be doubted: a *spontaneous* remission of the symptoms, is not, so far as I can recollect, by any means a frequent occurrence, if indeed it has happened in the degree above described in any of the recorded cases. That they were hurtful cannot be imagined, as they induced none of the symptoms which, under common circumstances, follow the immoderate use of narcotics. And that they were useful in soothing the patient's last hours is still more evident. Whether, on the recurrence of the disease, more laudanum and ether ought to have been given, cannot now be a subject of doubt, the fatal event having determined that question in the affirmative. Upon the whole, the very remarkable influence over the disease which those medicines exhibited, has determined me to try their effect on the first opportunity which presents itself to me,—keeping in sight, however, the favorable result in the cases of Dr. Shoolbred, M. Magendie, and Dr. Cavell, and the treatment there employed. It is possible that the very advanced stage of the disease modified, in the above case, the effect of the remedies; and that, if given at an earlier period, they might have prevented the extreme exhaustion of the vital energy, occasioned by a three days' continuance of this dreadful malady, and which of itself may be considered as a sufficient cause of a fatal termination.

---

*Remarks on Hydrophobia.*

In reflecting on this nearly hopeless disease, some consolation is derived from the certainty that, by proper treatment timely employed, its access may be prevented in almost every case where the whole surface of the bite is accessible to the necessary applications. The only three cases which have occurred to me in this country, have been successfully carried long beyond the usual period of danger, by the plan so steadily adhered to, and with such admirable efficacy, in the hospitals of southern Germany: viz. cutting out, washing, burning, and blistering the wound, and keeping it in a state of suppuration for two months: in one case I kept the system under the influence of mercury during the same period; but this is a measure of doubtful advantage.

---

## No. 10.

### *Notices on the Kat-Karanja, Gulancha, and Rohuna; by H. Piddington, Esq.*

I beg to submit to the Society, some notices on these native Febrifuge Plants, which have for some time engaged my attention.

May I be allowed to express a hope that the Society will deem it worthy of their attention to institute inquiries as to what may be the efficacy of the native remedies for intermittents, in their more concentrated forms, as now submitted to them? If they will do so, I shall be most happy to follow up the chemical investigation of such as may be found or suggested to be useful. In the researches, of which the following notice are the results, two objects were proposed—to obtain separately, or at least in a form more available for medical purposes than the nauseating decoctions of them are, the bitter principles of the plants under examination, or some of their compounds, if such existed,—and so to simplify and œconomise the processes, that, if useful, they might wholly, or partly, replace the costly preparation from the Cinchona: it is for the Society to determine how far these objects have been attained, and what the medical utility of the products may be.

In the details, unsuccessful attempts and the necessity of farther researches have been at times adverted to; and those who, in this climate, with limited time and far more limited means, engage in similar pursuits, will easily appreciate the motives for so doing.

---

### No. 1.

*B. Nata Kanta.*
*H. Kat-Karanja.* } *Cæsalpinia bonducella.*

The nut was found to contain starch, resin, sugar, and oil, and its bitter principle. The aqueous decoction holds all these in solution, and is an emulsion which filtering will not render limpid. It may be evaporated, which is the best method of submitting a quantity of the nut to the ac-

tion of alcohol: it has a tendency to pass quickly to the acetous fermentation*.

1. By alcohol the starch is separated; the solution is of a pale, clear, greenish-yellow. It was found, that when the alcohol was so far distilled over, as to leave the liquor somewhat turbid, the resin slowly concreted into minute globules on the surface, by repose and exposure to the atmosphere; and these again into larger masses of it. The whole of the resin may be thus separated.

2. The resin has the known properties of resins, and the peculiar taste of the nut, without its bitter.

3. Freed from the resin, the remaining syrup was diluted with a large quantity of water, forming, as before, a bitter emulsion. An excess of acetate of lead in solution being poured in, a flocculent precipitate was obained, and the fluid left perfectly limpid.

4. The precipitate was a metallic soap, formed by the oil and the oxide of lead.

5. The excess of acetate of lead was decomposed by sulphuric acid, till the whole was nearly thrown down; a current of sulphuretted hydrogen was then passed through to separate the remainder, and the filtered liquid boiled and evaporated in a steam-bath, to dissipate the remaining acetic acid, which was carefully ascertained by litmus.

6. The residuum, which contained the sugar and bitter principle, was, when dry, a brittle brown mass, of a sweet, followed by a strong bitter taste; and soon deliquescing into a syrup.

7. Ether repeatedly digested upon this, when dry, dissolved the bitter, and left the sugar untouched.

8. The sugar is a brown uncrystallizable variety of this principle; it may be dried by heat, but quickly deliquesces, assuming the appearance of treacle.

9. The etherial solution was distilled over, and the residuum purified by solution in alcohol and water, was a resinous-looking transparent and

* A circumstance which may probably be taken advantage of, if the bitter principle remains unaltered during its progress.

slightly coloured mass, brittle when dry, but soon deliquescing into a soft gummy substance: it was excessively bitter, and this was apparently increased by acidulation with sulphuric acid; very soluble in water, alcohol, and ether; does not sensibly change litmus or turmeric papers, or afford any precipitate with the pure or carbonated alkalis; it shows no tendency to crystallize from its solutions.

10. A portion of it was dissolved in water, to which a minute quantity of sulphuric acid was added, but no crystals were obtainable or acetic acid evolved.

11. When the alcoholic solution was evaporated somewhat rapidly, an oily substance, with white curdy flakes, was left: this last appeared to be the unoxidized resin and bitter; the liquid part, the oil and sugar, with some portion only of the bitter, were separated by the filter, and the curdy mass was mixed with water, acidulated with $\frac{1}{200}$th part of sulphuric acid, which in 24 hours dissolved the greater part of it, leaving a yellowish gummy, and nearly tasteless, residuum.

12. The solution was transparent, colourless, and very bitter; in evaporating, yellowish flakes formed in it, which assumed gradually a dark muddy colour; it appeared probable that this was a portion of the resin, for its peculiar taste was perceptible in the alcoholic solution of it, when separated by the filter.

13. Evaporated to a syrup; the solution was allowed to crystallize, which it did in small needles of a satin-like lustre, much resembling those of Sulphate of Quinine: they have a faint bitter taste, with some astringency; are very soluble in water and alcohol; their solution reddens litmus paper: they were obtained in too small a quantity to admit of investigating their base, which I propose to do on a future occasion.

---

No. 2.

*Gulancha.* { *Menispermum verrucosum.* / * *M. glabrum ?*

The concentrated decoction did not redden litmus; gave copious precipitates with tincture and infusion of galls, acetate of lead, nitrate of

* In a large parcel sent by a friend (to whose suggestions and encouragement these essays are owing) the greater part was M. glabrum. I have not

silver, and muriate of tin, and, after a time, with sulphate of iron; the supernatant liquor of that obtained by muriate of tin was colourless; no precipitate was obtained by solution of isinglass or tartar-emetic, and an attempt to decompose the gallate by sulphate of iron did not succeed, but appeared worth repeating.

1. The decoction, evaporated to an extract, was acted upon without heat* by alcohol, (926) which dissolved a large part of it; the solution was of a deep crimson-red, and excessively bitter; the residuum was a viscid reddish-brown mass, of the consistence of birdlime: did not harden by drying, and was tasteless; it was probably a compound of starch, mucilage and extract, soon becoming mouldy; it was partly soluble in solution of potass.

2. The bitter alcoholic solution evaporated; left an extract. Precipitation by water separates a portion of extractive from this; in the first trial it was obtained more consistent, perhaps from different states of maturity of the plant.

3. The extract, acted upon by water, acidulated with $\frac{1}{200}$th part of sulphuric acid without heat, (which was found only to increase its solvent power till it cooled again,) filtered and slowly evaporated to a syrup, crystallized in a few days into little round heaps, *(mamilons)*, which were agglutinations of silky needles, of a dull white colour, highly soluble in cold water, partly so in ether, and but sparingly in alcohol, with which the extractive was washed from them; examined by a high magnifying power, they were found to be composed of bundles of cylindrical or polyhedral rods, too minute to be accurately defined.

4. Solution of potass precipitates a base from the salt, but the quantity was too minute to be examined.

The extract offers a means of administering this in large quantities without inconvenience, and it is not, perhaps, generally known, that where this can be done, few cases, even of the severe jungle fever of the Eastern

yet seen here the true Menispermum verrucosum of the Eastern Islands, which is a far more powerful bitter.—*Note by the Secretary.* Both varieties are abundant in the H. C.'s Botanic Garden.

* Heat only enables the alcohol to dissolve more of the extractive;—the whole of the bitter is obtained without it.

Islands, will resist it. I speak from extensive experience. On an estate, situated in a most unhealthy spot near Manilla, where 15 and 20 men were often attacked in a day: whenever they could, after the fever assumed the intermittent form, take from a pint to a quart of strong decoction in a day, they were saved; those who could not retain it, perished inevitably. My own experience, in an attack of this dreadful fever, first taught me the value of large doses of it. I have found that made into pills, with magnesia, it does not alter, and is highly efficacious here in the common intermittent fever.

---

No. 3.

*The Rohuna Bark, (Swietenia febrifuga.)*

1. The process for Sulphate of Quinine, as described by Dr. Paris, (Pharmacologia, vol. 2.) was followed with this substance, and with full success; an alkaline fluid, covering a brown viscid mass, being obtained in the retort, the fluid was carefully neutralized by sulphuric acid, but I have not succeeded in crystallizing it.

2. This specimen will be found to be a true compound: it does not affect litmus or turmeric paper, and the alkaline solutions immediately precipitate its base, while the barytic tests unequivocally demonstrate the presence of the acid. By solution in water some coloring matter was separated from it.

It is intensely bitter, (almost acridly so,) highly soluble in water and alcohol, and does not alter by keeping; its base has not yet been examined, nor have its combinations with other acids been effected.

3. The brown acid mass was treated with dilute sulphuric acid, as for Quinine, but no crystals were obtained.

---

*On the Sulphate of the Bitter Principle of the Rohuna Bark, (Swietenia febrifuga.)*

In continuation of my memoir, on the Bitter Principles of the India Febrifuge Plants, I beg to present to the Society a specimen of the crystallized sulphate of the Rohuna Bark, which, by a reference to that paper, it will be seen I did not then succeed in crystallizing. The process for

obtaining it, differs from that previously adopted, (which was the one recommended by Dr. Paris for the Sulphate of Quinine;) and as it is both simple and inexpensive, while it furnishes a *bitter* sulphate, which the other febrifuge plants have not yet afforded, I trust the Society may consider it worth a trial of its efficacy.

1. A quantity of the bark boiled in rain water affords a very bitter solution.

2. To which, when cold and filtered, solution of acetate of lead is added in excess; a copious white precipitate falls down, the liquid remaining perfectly clear and almost colourless.

3. The precipitate is a combination of the oxide of lead with the colouring principle, and may be thrown away.

4. A current of sulphuretted hydrogen, passed through the filtered liquid, decomposes the excess of acetate of lead; this is continued till no trace of lead exists.

5. The solution separated from the sulphuret of lead by the filter, when repeatedly evaporated at a boiling heat, loses the excess of acetic acid;—when this is effected it no longer affects litmus paper, but gives a precipitate to dilute solution of potass, and is, therefore, an acetate: it is a brown deliquescent mass, and uncrystallizable.

6. When this is dissolved in water, slightly acidulated with sulphuric acid, the smell of acetic acid is evolved; and when the solution is evaporated, a plentiful crop of minute acicular crystals is obtained, which should be taken out, as formed, by a feather: these dried and washed with alcohol, are the sulphate now presented.

I have as yet only ascertained that they are highly bitter, very soluble in water, scarcely so in cold alcohol, and very sparingly so even when the alcohol is boiling; (in this it differs very notably from the Sulphate of Quinine.) My next communication will be an examination of its bases; for its sensible properties would induce a belief that it may be found to approach much nearer to the Cinchona than any which have been yet examined.

*Extract of Gulanchu.*

Evaporate the aqueous decoction (which should be made from the *crushed* stems of the plant) to the consistence of a jelly.

2. Digest Alcohol repeatedly upon this without heat till the pasty residuum is left tasteless; distil over the Alcohol to the proper consistence upon a water bath, it is the extract.

---

FORMULA.

*Extract of Kut-Karanja Nut.*

1. Break the shells and reduce the kernels to powder, which boil in a large quantity of water.

2. Strain the emulsion through a coarse cloth, and evaporate it quickly almost to dryness.

3. Digest Alcohol. 896 upon this, till the starch is left tasteless.

4. Distil over the Alcohol till the residuum becomes turbid—the heat not to exceed 200.

5. Allow this residuum to remain for 8 or 9 days in a deep evaporating dish with access of air; the resin will slowly concrete in globules, which unite in masses on the surface; separate this by water.

6. Evaporate the aqueous emulsion again to the highest degree of a steam bath; it is the extract, a mixture of the oil, sugar, and bitter principle.

---

I have just found that the Goluncha at this season of the year (July) contains little or no bitter! or rather, so little that I have been obliged to abandon my attempt at preparing the extract, which I was about to do in quantities, for the purpose of sending to some friends for trial. I think this should as much as possible be made known, for it undoubtedly has contributed, in some instances, to discredit the medicine, and it is a fact of which I, who have known it for some years, was entirely ignorant. I have a large quantity of the plant, perhaps a maund, now with me, and the bitter is scarcely perceptible, either in the old or young stalks: the natives say that its strength is greatest in the hot weather.

*Letter from H. Piddington, Esq., dated May* 19, 1829, *enclosing Extract of Letter from Dr. Hardie, on the Extracts of Kuranja and Gulanchu.*

The annexed extract of a letter from Dr. Hardie, at Oudeypore, is, I think, of sufficient interest to call the attention of the Society to it, with a view to further confirmation of the value of the Extract of Gulancha from other quarters. Dr. Stewart, of Howrah, also speaks very favorably of it, and may, perhaps, furnish you with some memoranda.

---

*Extract of a letter from Dr. Hardie, Oudeypore; dated May 1st,* 1829.

I had an opportunity of trying your Extract of Gulancha towards the termination of last rainy season, when fevers of all kinds prevail to a fearful extent in this district; and I am happy to be able to state, that I have found it a most valuable medicine. I have no hesitation indeed in saying, that in every case where Cinchona is usually prescribed, it will be found to answer equally well as the last medicine; and the Gulancha has this great advantage over the Cinchona, viz. that it will lie on the stomach when Cinchona in powder will not, and that it is altogether a most convenient and powerful febrifuge. I do not find, that bitters, in whatever shape exhibited, are of much avail in the jungle fevers of this district; on the contrary, they are frequently hurtful, and they ought not to be administered till such time as we have a regular intermission, or till the secretions, which are at first in a very vitiated state, have assumed a more healthy appearance. Even the Sulphate of Quinine is frequently found to induce a fresh attack of fever, when prescribed during the *remissions* of our jungle fevers. I have myself experienced this, and the sensation of confusion of ideas, accompanied by extreme restlessness and heat immediately induced on taking a dose of Quinine or bark, was by no means the least disagreeable of my symptoms. In all cases of regular intermittent, however, when the Extract of Gulancha has been exhibited, the patient has recovered after two or three doses, and I have never been under the necessity of prescribing more than six. If you wish for a list of patients, &c. I shall be happy to furnish it: there are in all about 20. I need not add that my stock is exhausted, and I shall be most happy to receive a fresh supply."

*Report on the Extracts of the Kuranja and Gulancha, by D. Stewart, Esq. of Howrah ; dated June 6, 1829.*

Four patients were of passive constitutions, and lymphatic temperament; pale countenances, and lax fibre.

Of these, one had an attack of acute dysentery, was bled, and took a full dose of calomel and opium, followed by castor-oil, which seemed for 12 hours to have arrested the complaint: a proper salivation, however, was not produced. The gums became swollen and purple, the tongue flat, of a yellowish white colour, with red dots, florid tip and edges : the alvine evacuations very frequent, consisting of an acrid serous fluid, to which bilious flocculæ and mucus formed a frothy surface, tinged with blood : the abdomen hard and flattened, with pain round the umbilicus and epigastrium, particularly on pressure. The skin dry and hot, with frequent irregular sweatings. He took extract of

Goluncha, grains 4.
Rhubarb, grains 4.
Peepul powder,
Powder of Ipecacuan, each grains 2 in pills, three times a day for three days, with the most marked improvement, and recovered perfectly afterwards, using every little medicine, save a gargle of chloride of lime.

The other three cases might be called chronic dysentery, or lienteric diarrhœa : one of them was a child 2 years of age. They derived eminent and decided advantage from the same medicines, in corresponding proportions.

Five native servants of regular habits and previous good health were attacked on the same day with fever, which I attributed to a heavy fall of rain during the night upon a quantity of fresh clay soil which had been removed a few days previously from a foul tank near the hospital, and spread over my compound.

Most of them complained likewise of rheumatic pains in all their joints. After a few small doses of Vin. Ipecac., so as to bring on a moisture of the surface, 5 grains of extract of the Karinja Nut, with 5 of rhubarb and 2 of the peepul powder in pills, were given to each every six hours; and though the soil was again moistened the following night, only two had a return of fever, and that very slightly.

The common spleen powder, which consists of Columba, Jalap, Rhubarb, Ginger, Cream of Tartar and Sulph. Ferri, may be very advantageously modified, and, I think, improved, by substituting the extracts of the vegetable powders. In one case I found the following combination answer very well; viz.

Extract of Goluncha,
„ of Jalap,
Comp. Rhubarb pill, (Edin.)
Powder of Peepul, each 3 grains,
Sulphate of Iron, grains 1½,
in pills three times a day.

The extracts, besides being more uniform in strength, possess the great advantage of being easily soluble in water, and thus an objection to the "spleen mixture," particularly when the Sup. Tart. of Potass is added, of its nauseousness and unpharmaceutical appearance, is removed. To a child of 6 years the following form will be found of much easier administration, and is a much more elegant preparation.

R. Ferri Sulph. gr. x.
Potass Sulph.
Magnesiæ Sulph. ā ā dr. 1½.
Tinct. Zinzeber.
—— Sennæ, ā ā dr. 3.
Aq. distileat, oz. 3,
Solve, cola et adde,
Pil. Rhei. Comp. (Edin.)
Extract Gulanchæ.
——— Jalapæ, ā ā dr. semissæ.
Aq. Menthæ, oz. 3,
L. a desert spoonful three times a day.

## No. 11.

### *Case of Diseased Heart; by E. J. Agnew, Esq.*

Gunner Peter Canudy, 3rd Company 4th Battalion Artillery, aged 28, was carried into hospital dead on Sunday night, the 29th June, about nine o'clock. His wife stated that he was in perfect health all day. Half an hour previous to his being brought into hospital, immediately after eating his supper, and in the act of smoking, he fell down in a state of insensibility; a dooley was instantly brought: the men who were with him, affirmed that he was dead before he was put into it. Had a slight fever in November last, for which he was admitted into hospital: was discharged well in a short time. Was also in hospital in February for a slight cough: was discharged well in two or three days; re-admitted 16th May, complaining of headache and palpitation of the heart, for which he was blistered and had purgatives: was discharged after remaining ten days in hospital.

---

*Dissection.*

*Head.* On removing the scull-cap, a considerable quantity of blood was found lying on the surface of the dura mater; veins of the brain very turgid, and its substance softer than natural; ventricles contained a small quantity of serous fluid.

*Abdomen* was next examined. The stomach was very much distended, and contained a considerable quantity of undigested food; the liver had a healthy aspect, it was somewhat enlarged, and when cut into, bled profusely; the gall-bladder was empty, the bile had exuded through its coats, as the surrounding viscera were stained by it; the spleen was completely surrounded, nay, almost covered, with dark venous-looking blood: this led to the supposition that some vessel had been ruptured, which might have caused death; spleen, large and small intestines, were all removed from the body; nothing having the appearance of a ruptured vessel could be discovered; spleen was not enlarged, it had a dark appearance, was gorged with black blood, soft, and easily pliable; the small intestines, (particularly the ilium,) were like all the other viscera, highly vascular; peritoneal coat of the ilium had a dark red appearance, the colon was distended, and in some places contracted; kidneys enlarged and gorged with black blood.

*Thorax.* The lungs had a grey appearance, and were not much collapsed; the posterior portion of each lung was completely gorged with blood, and when handled immediately burst; when the lungs and heart were removed from the body, upwards of a pound of blood was found lying in the thorax. The pericardium was very much distended, and when opened an immense quantity of serum, tinged with blood, gushed out, together with a pound of coagulated blood: the heart, when separated from the lungs, was found to be pale, flabby, and loaded with fat; its walls were thin. On examination of the aorta ascendens, immediately above the antenior coronary artery, a small opening was detected, into which a crow quill could be introduced: by putting the finger into the aorta, the quill could be felt. That part of the aorta surrounding the external opening was found to have undergone a morbid change; it was red and more elevated. On examining the inside, there was a dilatation of the roots of the vessel, into which the top of the finger could be introduced. The opening of the coronary vessels could be distinctly seen below.

## No. 12.

### *Case of Lithotomy, performed by a Native; communicated by A. K. Lindsay, Esq.*

The operator in the following case is a native of Gwalior, a Kayuth of the Sutheya (or surgeon) caste, named Luchmun Singh. Before allowing him to proceed in the operation, I conceived it was proper to question him on the practice he had had, and how the operation was actually done. His own report (perhaps not much to be depended on) made out that he had been very successful in about one hundred and fifty cases of Lithotomy, having lost only 15 or 16 out of that number. But putting his own statement entirely aside, the description of the steps of the operation was so satisfactory, that I was at no loss to sanction and attend it. His method, as will be seen in the sequel, is that called "cutting on the gripe," or by the "Apparatus Minor:" the latter epithet was never better applied, for his whole stock of instruments consisted of an old lancet, a small folding knife, and a piece of unpolished iron about the size of a common uncut drawing pencil, having one end coarsely scoop-shaped. The patient is a boy about seven years old, son of a Goala residing in the bazar of the 3d Cavalry, who had suffered dreadfully for some months from unequivocal symptoms of stone in the bladder. The parties having met in the cavalry hospital, where Dr. Browne of the 20th Regiment

(the only other medical officer here at the time) was present.—(June 30th,) Dr. B. and I having satisfied ourselves of the existence of a calculus of considerable size by examination by the rectum, (we had no instrument which we could use as a sound in so young a subject,) without any preparation whatever, nay allowing the boy to void urine just before commencing, the operator proceeded as follows: having first gladly accepted a double-edged scalpel as a substitute for his own knife, but refusing forceps of any kind, the patient having been placed on his father's knees, who was seated on the edge of a cot, each hand was passed under the ham of the same side; the wrists were then firmly seized, and lightly held in such a position as to draw the knees of the patient as far upwards and outwards as possible; the operator kneeling before the boy, easily introduced the two fingers of the left hand into the anus, and with the right having roughly pressed above the pubes for a few seconds, he brought the calculus to press out the skin to the left of the perennial raphi near the anus; he then boldly cut down on the stone, (this incision running nearly in the same direction as in the lateral operation performed by us,) and attempted to scoop out the calculus very roughly with the bit of iron. He failed now, and at our suggestion slightly enlarged the wound, when he extracted with ease a calculus, of a flattened oval shape, larger than a pigeon's egg, the whole being over in less than two minutes. Had the wound been a little larger at first, the process would not have occupied half that time, from the drawing of the first drop of blood till the extraction. It is needless to state, the Hukeem was totally ignorant of anatomy, having no rational idea of the parts to be divided, nor of those that would have been endangered by a slip of the knife. The principal objection to his method seems in the smallness of the original incision, by which considerable laceration must always take place, to an extent of course proportional to the size of the calculus. However, as no precaution was taken to empty the rectum, experience has probably taught these native lithotomists, that a lengthened incision is apt to wound the gut. On the whole, the dexterity displayed was very great, and the speedy extraction rather to be wondered at, considering the apparatus, or, more properly, the want of it. I should suppose the difficulty of operating after this fashion in an adult to be very considerable, from the depth of the pelvis preventing the pressure above the pubes materially assisting in getting the stone fairly within the grasp of the fingers in the rectum. For children with their shallow pelves, the method seems unexceptionable. From this case I should be disposed to give the operator credit, for many others having been equally successful;

and I should also be induced to subscribe cordially to the following opinion from Cooper's Surgical Dictionary, (Art. Lithotomy.) "The Apparatus Minor, as practised by Fabricius with the aid of a staff, is certainly so simple and safe an operation for children, that we must lament its utter neglected state. I confess I should, however, dispense with a staff, not being able to fancy what use it would be of, should the calculus be made to protrude as in the above case."

The calculus in this case weighed, when dry six hours after the operation, 217 grains. The after treatment was rather complicated. A great variety of poultices and ointments having been made use of, the best recommendation of which, in my opinion, was there not being one ingredient in any of them calculated to do any harm: the lithotomist, however, pretended to attach much importance to them.—(July 7th.) The eighth day after the operation, the boy was brought to pay me a visit. Wound looking well. Urine beginning to come by the natural passage—in short, doing well in every respect.—(July 10th.) Every thing continues unusually favorable.

On questioning the operator as to his other surgical acquirements, he did not pretend to any thing beyond Lithotomy, depressing the Cataract, extracting Nasal Polypi, and the treatment of wounds and sores. He said only a very few of his professional brethren ventured to practise extraction of Urinary Calculi. He also represented this disease to be far more frequent in Bundelcund, and farther to the westward, than is commonly supposed.

## No. 13.

### *Case of Snake-bite; by H. Clarke, Esq., Goruckpore.*

September 18, 1828.—I was called up this morning at 3 o'clock to attend a person bitten by a snake. On going into the verandah where he lay, surrounded by several natives, who had accompanied him from the bazar; the symptoms which are well known to characterize this accident were at once observed; viz. stupor, insensibility, laborious respiration—pulse small, quick, and almost imperceptible—countenance indicative of great anxiety and distress; with constant endeavours to expel a frothy secretion from his mouth and fauces. He was utterly unable to articulate; but on being roused, evinced a slight degree of consciousness.

On examination, the wound by which the poison was injected, was discovered at the bend of the right arm, a little below the bifurcation of the superficial vein; extending horizontally, immediately underneath the cuticle, about half an inch in length. A slight elevation was thus produced, of a paler colour than the surrounding skin, and resembling very much the appearance of a splinter of fir. The adjacent parts, to the extent of two or three inches in every direction, were tense and painful, an abundant effusion of lymph being poured into the cellular tissue.

Having attempted to exhibit a stimulant—the Liquor Ammoniæ was the remedy preferred—I freely scarified the punctured wound, taking care to expose it fully without penetrating through the integuments. A ligature was applied a little above the elbow, and an attempt was made to give another dose of Ammonia; but, as in the former instance, without success, in consequence of the violent spasmodic action into which the muscles subservient to deglutition, were instantaneously thrown. The sense of suffocation, and urgent distress, occasioned by the efforts to expel the frothy accumulation on any thing being taken into the mouth, induced me to refrain from administering any more internally, and resort without delay to the measure recommended with so much confidence by Dr. Barry—a measure which, from its first being announced, I determined to have recourse to on the earliest occasion.

I proceeded, accordingly, to remove the atmospheric pressure from the wound, by means of the ordinary cupping apparatus; and with the exception of a few transient intermissions, retained the glass upon the surface for nearly an hour and half; at the expiration of which, I had the delightful satisfaction to observe a manifest improvement in the symptoms.—On first applying the exhausting syringe, apprehensions were entertained for the safety of the patient—his eyes had then become dim—he breathed convulsively, and a profuse perspiration extended over the body, with other unfavorable symptoms.

At 5 o'clock, two hours from the time of his arrival, and seven from the infliction of the wound, (as he was bitten at 10 o'clock,) he became more composed and expectorated less froth; his pulse began to increase in volume, and the sense of suffocation was diminished.

From this period the dry-cupping (for but a small quantity only of blood was extracted) was discontinued; and the Liq. Ammon. was again administered, although at first with considerable difficulty. At 6 o'clock he was enabled to stand, and shortly afterwards to walk a few paces. At 10 o'clock, the sense of constriction in the throat had disappeared, but an extreme desire to sleep still prevailed; his tongue was covered with a thick white fur, and the breath emitted a peculiarly offensive odour. During the four preceding hours the Ammonia had been administered in doses of from gt. xxv. to xxx. every half or three quarters of an hour. The bandage at this period was not removed; and at his own request he was permitted to bathe. At 3 P. M. he could not articulate distinctly. A slight degree of irritation had been occasioned in the fauces by the Ammonia, but water could be swallowed without uneasiness.

At 6 P. M., twenty hours from the bite, and fifteen from his arrival at my bungalow, the drowsiness continued, accompanied by a heavy dull appearance about the eyes, with redness of the conjunctiva, resembling that of a person recovering from intoxication. Great indistinctness of vision prevailed—which, with pain in the vicinity of the puncture and other parts of the arm, arising from the ligature (which had been removed a short time before) were all that now remained as consequences of the bite. Cath. Ext. gr. vi., Hyd. Submur. gr. v. were administered, and he was allowed to return to his house in the bazar.

19th. He returned this evening quite free from the vertigo and other sequelæ of the bite, having enjoyed a long and refreshing sleep.

The purgative medicine having proved inefficient, Pulv. Jalap. gr. xxx. was given with advantage.

---

The subject of the preceding case is a fine healthy youth, about 14 years of age. On the occurrence of the accident, he was immediately conveyed to some persons who bear the reputation of being "Snake Doctors," with one of whom be remained till nearly 3 P. M., who, finding the resources of his art unavailing, after having practised his quackery for some time, dismissed him, with an injunction that he should be taken to the Civil Surgeon, as he had been bitten, he said, by a "*Biscopra.*"

This animal, the bite of which is deemed inevitably mortal by the natives, (unless the patient be so fortunate as to drink water on the occurrence of the accident, when the creature instantaneously dies!) is the Lacerta Iguana*, an inoffensive and innoxious reptile.

Ingenious theorists will doubtless continue to speculate on questions like the present; I shall content myself however on this occasion with having adduced a *fact*, not in confirmation of any preconceived opinion, but as a simple statement arising in the ordinary course of practice. The physician whose luminous views are before the professional public, has sufficiently illustrated the principle upon which the success of the measure depends. On this point, therefore, further observation would be here superfluous.

It is obvious that the vital functions were nearly destroyed by the operation of that portion of the virus which had been received into the system; and the conclusion is certainly legitimate, that the further process of absorption was suspended, and the life of the patient probably preserved by the means employed. The superficial nature of the wound was doubtless a very favorable circumstance towards his recovery. The case is one, however, which offers the highest encouragement to a repetition of the practice, whenever and wherever a similar accident may occur.

---

* *Note by the Secretary.*—That the animal here alluded to is the "Lacerta Iguana," may not, perhaps, be clearly or satisfactorily made out; but there can be no doubt of the absurdity entertained by the natives respecting the reputed venomous powers of the reptile termed by them "*Biscopra*," the writer of this note having had convincing personal evidence of *its* bite being quite innoxious and inoffensive.

## *List of the Donations for the Library.*

| | |
|---|---|
| The Medical Board of Bengal, ... | A copy of Dr. Ainslie's Materia Medica. |
| G. J. Gordon, Esq. ... | A copy of Prosper Alpinus. |
| W. Geddes, Esq. Madras Estbt. | Six copies of a work on the Seringapatam Fever. |
| C. Searle, Esq. Madras Estbt. | Two copies of a work published by him on Cholera. |
| H. H. Wilson, Esq. ... | Lemery's Dictionnaire Pharmaceutique, and Hindy on Cochin or Barbadoes Leg. |
| The Medical Board of Bengal, ... | A copy of Dr. MacCulloch's Works on Malaria and Marsh and Remittent Fever, andSimpson's Anatomical Plates of the Bones and Muscles. |
| D. B. Wardlaw, M. D. ... | Broussai's Work on Febrile Phlegmon, and other French Works. |
| J. Tytler, Esq. ... | A copy of a Translation of Silius Italicus and Miscellaneous Poetry, by the late Dr. H. W. Tytler. |
| Ditto. ... | An Anatomical Description of the Heart, translated by himself into Arabic. |
| Medical Board of Madras, ... | Six copies of a Volume of Reports and Table of Diseases of European Troops. |
| Dr. Baron, of Gloucester, ... | Three Works of his own on Tubercular Diseases. |
| D. Todd, Esq. ... | A complete series of the London Medical and Physical Journal,&c. |
| The Medico-Botanical Society of London, ... | Copy of an Oration, by Mr. Frost. |

| | |
|---|---|
| P. Breton, Esq. ... | The various Treatises drawn up by himself in the Native dialects for the use of the Students of the School for Native Doctors. |
| Horticultural and Agricultural Society of Bengal, ... | The 1st Volume of their Transactions. |
| General Committee of Public Instruction, ... | A copy of the Moonzal Quanoon, a Medical Work in Arabic. |
| Dr. Conwell, Madras Establishment, ... | A copy of a Work by himself on Indian Pulmonic Disease. |
| James Annesley, Esq., Madras Establishment, ... | Copy of his Work on the Diseases of India. |
| G. Swinton, Esq. ... | A copy of Lamarck's Works on Les Animaux sans Vertebres, 7 vols. |
| T. E. Baker, Esq. ... | His book on the Art of Preserving Health in India. |
| Wm. D. McRitchie, Esq., St. Helena, ... | Brook's History of St. Helena. |
| Dr. Hayes, Editor of the American Journal of Medical Sciences, ... | The several Numbers of that Work. |
| Dr. Duncan, of Edinburgh, | Several Numbers of the Edinburgh Medical and Surgical Journal, and a copy of his Supplement to the Edinburgh Dispensatory. |
| Dr. Burlini. ... | Richerand's Elemens de Physiologie; Tourtelle's Elemens de Hygiene; Zimmerman's Traite de l' Experience en general. |
| K. Macqueen, Esq. ... | Annals of Philosophy, 12 vols.; Medico-Chirurgical Transactions, 9 vols.; Pearson's Materia Medica; and Observations on Morbid Poison, 1 do. |
| A. Ross, M. D. ... | Boerhaave's Lectures. |

## *List of the Donations for the Museum.*

| | | |
|---|---|---|
| G. Angus, Esq. | ... | A very large Morbid Cranium, found in the neighbourhood of Hidgelee. |
| J. Grierson, Esq. | ... | A stuffed Specimen of the Albatross. |
| R. M. Ronald, Esq. | ... | Several specimens of rare Birds from N. S. Wales. |
| H. H. Spry, Esq. | ... | A preparation of the Heart, exhibiting Aneurism, and Rupture of the Aorta near its root. |
| A. K. Lindsay, Esq. | ... | A Urinary Calculus, taken from a Native. |
| R. M. Martin, Esq. | ... | Three Skulls of New Hollanders, and Natives of Vandiemen's Land. |
| A. Smith, M. D. | ... | A preparation of the Heart of a Tiger. |
| The Medical Board of Bengal, | | An Anatomical Model of the Human Figure, prepared of papier machee, nearly of full size. |
| Lieut. W. Hickey, Secretary to the Board of Supt. for the Breed of Cattle, | | Specimens of Filaria, or the Worm which infests the eye of the Horse. |
| J. Tytler, Esq. | ... | Two peculiar Skulls. |
| J. Grant, Esq. | ... | The Cast of a Hydrocephalic Child. |
| R. M. Martin, Esq. | ... | A number of Crania of different Nations and Tribes. |
| H. Crockett, Esq. | ... | Two Crania, exhibiting remarkable peculiarities. |

## ERRATA.

Page 128. l. last but one : *for* ‘ Servi’ and ‘ Servistan,’ *read* ‘ Sewī’ and ‘ Sewistān.’

,, 141. l. 2. *for* ‘ single’ *read* ‘ simple.’

,, 141. l. 13 *for* ‘ stroke’ *read* ‘ shake.’